Peasant Strategies and Forest Politics:

Natural Resource Management in Two Tribal Villages of Orissa, India

Thesis

presented to the Faculty of Arts

of

the University of Zurich

for the degree of Doctor of Philosophy

by

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Accepted in the summer semester 2005 on the recommendation of

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Druckerei UZH Zentrum Zurich

2008

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ACKNOWLEDGEMENTS

Many people have contributed to enable this study of natural resource management in two tribal villages of Keonjhar District in Orissa. I would like to thank them for their manifold support in the various phases of the research.

It is a long way from Switzerland to Orissa in India and there is no easy road into tribal villages for a newcomer.

It was a research project on local management of forests in India, Nepal and Bhutan of the former Chair of Forest Policy and Forest Economics (Swiss Federal Institute of Technology ETH) that paved the way to Orissa. Part of this research project under the lead of Prof. Dr. Klaus Seeland focused on indigenous knowledge on forest among various tribal groups in Orissa. In my function as a research assistant in this project from 1995 to 1998 I had the opportunity to travel there and to meet people who were of great support to find a way into the field when I started my own research project in 1997.

The *Council of Cultural Growth and Cultural Relations* in Cuttack became a central place during my stays in Orissa. I am deeply indebted to General Secretary Sri Girija Bhusan Patnaik. He was a great door opener to many persons and institutions and an indispensable pilot through the jungle of challenges a foreign researcher may face in India.

Many thanks also to all the scholars who were well acquainted with field research in tribal areas in Orissa and shared their knowledge and experiences with me: among them Dr. Mihir Kumar Jena and Padmini Pathi. At the Department of Anthropology, Utkal University Prof. P.K. Nayak and Dr. Jagannath Dash provided valuable support to my research project.

My decision to do field research among the Juang in Keonjhar was partly due to several conversations with Dr. Nityananda Patnaik from the Social Science and Development Research Institute, Bhubaneswar. His professional support as a Social Anthropologist with long experience of field research among tribal peoples of Orissa and also among the Juang was of great value in the process of decision-making about where to carry out my study.

The most enduring support in all the challenges of anthropological fieldwork I had from my research assistant Champak Kumar Sahu. His manifold talents not only facilitated the collection of relevant data, but everyday life in the villages in general. It would have taken much more time and it would have been much harder for me to get access to the villagers without him. Open minded towards everybody, interested in people and in village affairs, eager for knowledge and patient with the foreign anthropologist sometimes lost in the puzzles of an unfamiliar culture, he has contributed a great deal to this research.

And I owe many thanks to all the villagers of Kodipasa and Kansa. They allowed me participate in village life. They explained me their ways of cultivating and using forest resources. They were ready to answer my many questions. Special thanks are due to Nila Juang for her hospitality. She accommodated us and made me feel at home in Kodipasa.

Other persons as well gave me a feeling of being welcome in Orissa. Among them are Reena Amanta in Cuttack and her family in Keonjhar and the family of Champak Kumar Sahu in Badpalsa.

After the challenges of fieldwork had been met with the support of these persons, there were new challenges in analyzing the data and writing the thesis.

Here I would like to thank Prof. Dr. Jürg Helbling (Institute of Social Anthropology, University Zurich) for his professional guidance. He drew my academic attention to strategies of peasant households and his critical comments on the drafts of this thesis deepened my comprehension of economic anthropology. Many thanks also to Prof. Dr. Heinzpeter Znoj (Institute of Social Anthropology, University Bern) for reviewing the thesis and for his valuable comments.

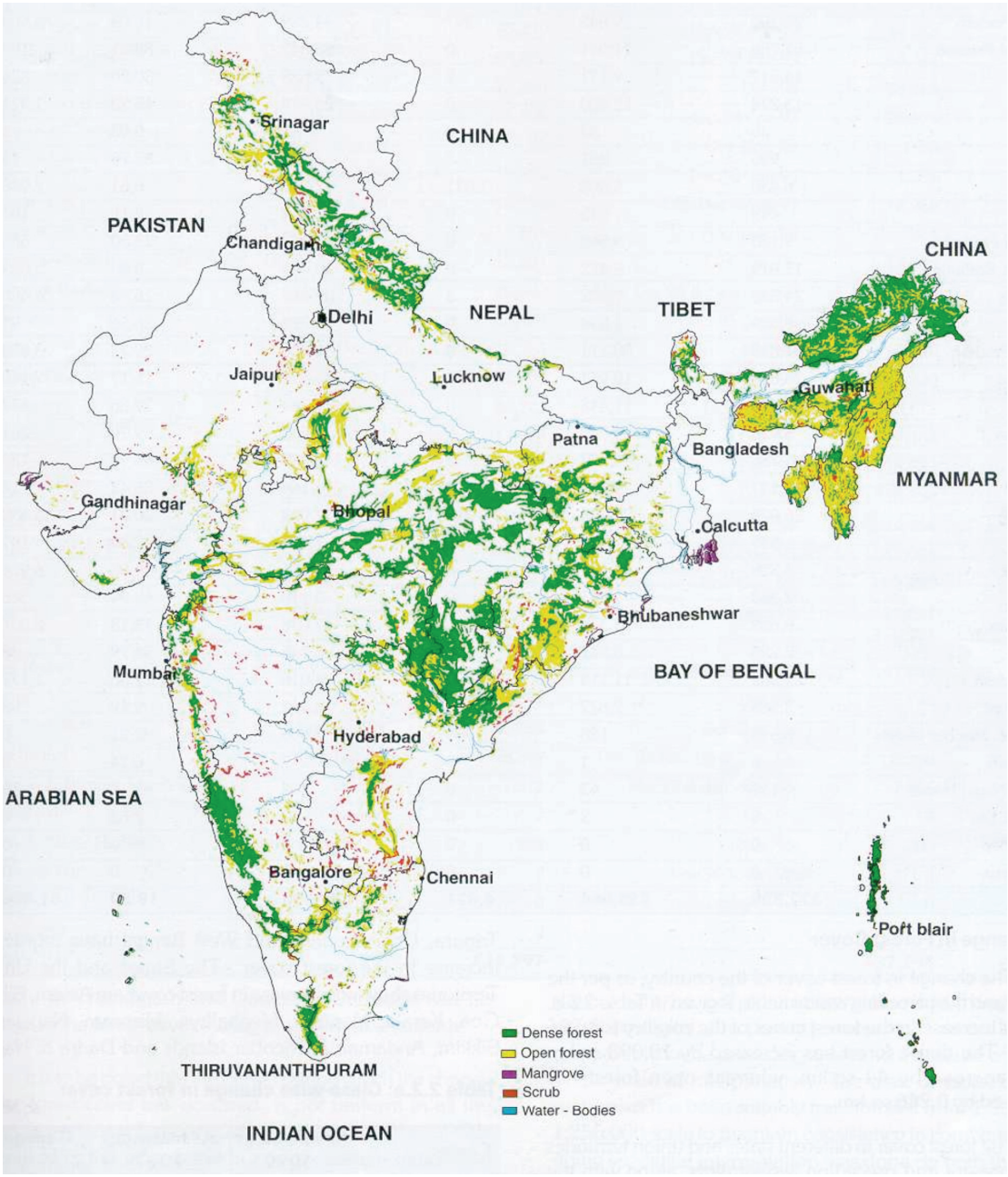
Exchange with Dr. Esther Leemann was often helpful to clarify methodological and theoretical challenges while writing the thesis. Dr. Reiner Bornemann supported me in keeping track of the structure of the thesis, even in times of getting lost in the jungle of data. Many thanks also to Renata Scaccia who did the proofreading and to Christoph Schwager for the layout.

And last but not least I would like to thank all my friends whose enduring support accompanied the project from the beginning to the end.

1 INTRODUCTION

1.1 Forest and tribes in India

Issues of deforestation and forest degradation are central to the environmental debate in India. With a percentage of forest cover to land area of only 15.7%, and a per capita forest area of 0.06 ha, India ranks very low in comparison to many regions and countries of the world (State of World Forest, FAO 1999, in Forest Survey of India 1999).[1]



Map 1: Distribution of Forest Cover in India (State of Forest Report, Forest Survey of India, Dehradun 1999)

[1] According to Poffenberger (1996:19) it has been estimated that India's forest-dependent populations minimally require 0.5 hectare of forest land per capita.

The causes of forest degradation are manyfold and are interlinked in complex ways. The environmental history of India reveals changing man-nature relations, in a broad context of economic, political, demographic and ecological transformations. Gadgil and Guha (1992) localise central causes of environmental degradation in India's recent past in the predominance of the 'industrial mode of resource use', which started to change resource use patterns with British colonialism. The industrial mode of resource use including fossil-fuel based agriculture has more far-reaching ecological impacts than the preceding modes of resource use of gathering and shifting cultivation, pastoralism and settled agriculture. Colonialism is seen by many environmental historians as an 'ecological watershed' (Gadgil and Guha 1992:116) in South as well as in Southeast Asia (Grove et al. 1998). It has been linked with increased rates of exploitation of natural resources in the context of growing "resource flows across different geographical regions and across different levels of any political/economic system" (Gadgil and Guha 1992:64) and increasing commoditisation of natural resources, once mainly used for subsistence or smaller scale markets. These economic transformations were accompanied by processes of dismantling control over natural resources of pre-colonial local political bodies and communities in the form of state control and privatisation. The end of the British colonial rule in India has not altered this trend. With independence, efforts to modernise and develop India, following the model of the West, continued, albeit with some ambivalence towards capitalism.

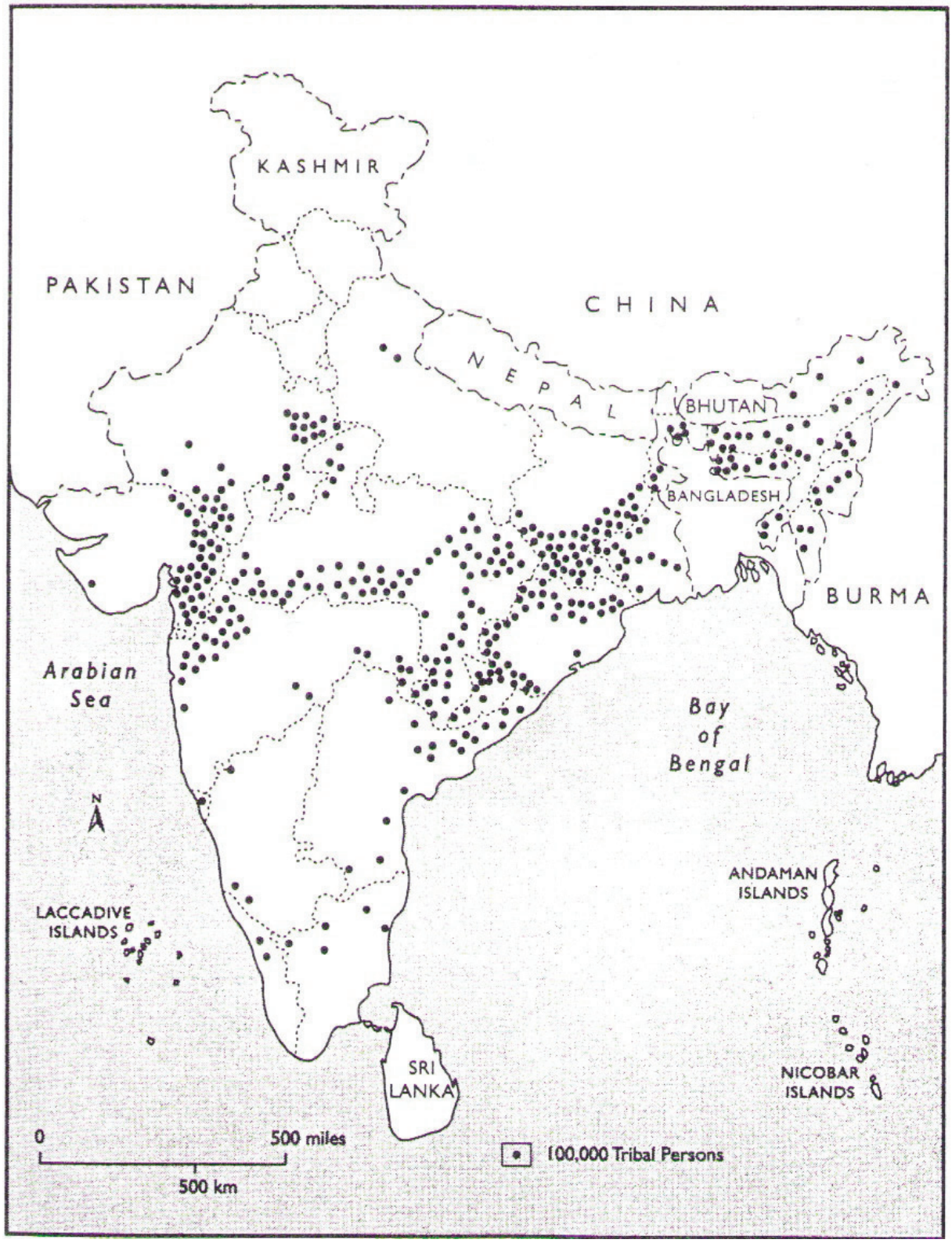
Changing consumption and lifestyle patterns, with effects on production technologies and natural environment, population growth and an erosion of community resource management systems by statization and privatisation, are also seen by Agarwal (1997:23) as the main causes of increased problems of environmental degradation in contemporary India.

The ecological consequences of these economic and political processes with regard to forests, have been diagnosed as large-scale deforestation and forest degradation, overuse of various forest resources resulting in a reduction of habitat and biodiversity, increasing soil erosion and water run-off resulting in decreasing water holding capacity, increasing siltation, downstream sedimentation and floods, in addition to climatic changes (Poffenberger 1996:259ff).

For several reasons tribal peoples[2] of India are given special attention in academic and political debates on environmental issues. They are often perceived as the forest dwellers par excellence, living in close association in and with the forest, with its resources being their central source of livelihood (compare map 1 with map 2).

They are seen as the representatives of less destructive patterns of livelihood than the population of the so-called 'mainstream society' of India, whose economy has largely developed in lowland areas of permanent and mostly irrigated agriculture, and who have been much more affected by processes of modernisation. Living in the hilly and forested areas, tribal peoples subsist on hunting and gathering, shifting cultivation and settled agriculture, and they are considered to be less integrated into markets. Tribal communities are perceived

[2] These various ethnic groups are officially distinguished from the society of the national majority by culturally loaded terms such as 'scheduled tribes', 'adivasi' and 'primitive tribal groups' (Colchester 1994:72). The commonly used terminology of 'tribe', 'tribal people' is heavily debated in academic discourses (e.g. by Dumont, Bailey) due to the difficulties of finding adequate criteria with which to distinguish tribes from castes, and due to the broad range of their economic, social, cultural and political situations. Criteria such as territorial control, political autonomy and economic self-sufficiency in most cases no longer apply to the reality of tribal societies in India. In many cases the term 'tribe' is used as "a sort of shorthand expression with only an approximate meaning, not one implying a rigorous definition" (Parkin 1992:9). For the history of the terminology of tribal peoples as 'adivasi' in India see Bates 1995.



Map 2: India's tribal concentration areas (Poffenberger 1996:51)

to represent many of the prerequisites for sustainable and non-destructive use of natural resources. As such they provide a matrix for alternative systems of management of natural resources based on principles of sustainability. Their assumed harmonic relationship with nature is thought to be based on small, homogenous and non-stratified communities endowed

with an intimate knowledge of their local environment and with efficient institutions, often backed by social and religious values that control access to natural resources and rates of exploitation at a sustainable level. Moreover, tribal communities, at least in the past, were thought to control and manage large parts of their natural environment as common property resources[3], in contrast to forms of centralised state or private control over natural resources. The erosion of such common property regimes has been attributed to political processes of centralisation and state control. Controlled and restricted access for tribal forest dwellers to forest resources by the forest departments all over India, has weakened indigenous common property regimes and resulted in degradation of forests.

Proponents of participatory approaches to development and environmental policies thus demand that local control over local resources be given back to these communities, or that efforts of co-management by local communities and the state be linked with traditional institutions of common property resource management.

A further reason why Indian tribes play a central role in environmental discourses is their vulnerability. They are seen as the main victims of environmental degradation.[4] Given their direct and high dependence on forest resources, degradation and reduction of these resources have far-reaching economic, social and cultural consequences for tribal communities. They often bear the consequences of large development projects such as dams, mines and plantations, which substantially change their habitats, or even deprive them of their homelands through resettlement, thus leading to their social and cultural erosion. However, tribes are not only perceived as the natural custodians of forest resources, endowed with local institutions protecting the forest from overexploitation or as sheer victims of exogenous interventions. Conversely, in some discourses they are made the scapegoats for forest degradation. They are accused of burning the forest for shifting cultivation, and of depleting the forest of whatever they need for their own use. Labelled as 'poor', 'backward', 'primitive', 'underdeveloped' and 'isolated' communities, they are targeted as needing to be integrated into the more 'developed' and 'civilized' Indian mainstream society.

In between these perceptions of Indian tribes as representatives of an ecologically sound past and as victims on the one hand, and as representatives of backwardness, environmental destruction and inefficient resource use on the other, there are many positions.[5] Academic discourses relating to tribal and environmental issues in India, are often closely linked to issues of development, and also aim to affect development policies. There are interlinks between environmental movements, scholars and policy makers, all of whom have their own specific interests and agendas. Thus, there are currently rich and lively debates on the above issues, which have intensified since the 1970s (Gadgil & Guha 1994) and find their expression in a broad range of studies.

Considerable attention is given to the negative impact of British and post-colonial forest policies on tribal societies, which mainly controlled and restricted access to forest resources, but also provoked protest, conflict and acts of resistance (e.g. Anderson and Huber 1988, Fer-

[3] 'Common property' or 'common property regime' is used to refer to the specific social institutions attached to the management of common pool resources: it refers to "a property rights arrangement in which a group of resource users share rights and duties towards a resource" (McKean and Ostrom 1995:3). This study will use the term 'common property resources' as a short term to indicate the management of common pool resources (in this study mainly forest) by groups of users, sharing rights and duties in contrast to open access, state or private control.

[4] They share this status of special environmental vulnerability with other marginalised sections of the Indian society such as Scheduled Castes, the poor, landless, small and marginal farmers and among these especially women.

[5] For a broad and general review of these discourses see Jewitt 2002.

nandes 1992, Gadgil and Guha 1996, Ghate 1992, Hardimann 1996, Pathak 1994, Poffenberger 1996b, Rangarajan 1996, Saldanha 1998, Shiva 1991, Sivaramakrishnan 1999). In these, and other studies, there is a strong focus on the many material and socio-cultural meanings of forest resources for tribal communities. They include descriptions of local or indigenous knowledge and management systems (Fernandes 1988, Jena et al. 2002, Seeland 2000 and 2003, Thakur 1994), several of them with a special focus on tribal women (Fernandes 1987, Gera 2002, Jewitt 2002, Kelkar 1991). Linked to issues of 'traditional' or 'indigenous' systems and institutions of management of forest and other natural resources, are studies analysing past and current forest policies with regard to aspects of participation and sustainability (Fernandes 1996, Locke 1999, Poffenberger 1996c, Sarin 1996). Among participatory approaches the strategy of the so-called Joint Forest Management (JFM) has been given special consideration. These studies have been backed by general critiques of top-down development strategies, and the popularity of the concept of 'community', which gained central importance for the management of common property resources in recent years[6]. Thus, a wide range of aspects relating to tribes, forest environment and forest policies and their interrelations in India is covered. However, there are several issues which have not been given sufficient importance in the broad discussion about tribes and management of forest resources so far.

One of these is the lack of an approach, which looks at the local use and management of forest resources within an integrated system of other natural resources. Environmental studies usually focus on one specific resource such as forest, land or water. The close interrelationship between land and forest use for example, is rarely looked at systematically, with the exception of forest used for shifting cultivation[7]. Linked to such a uni-dimensional focus is the tendency to perceive tribal people such as those under study here, as mainly 'tribals', 'forest dwellers' or sometimes as 'shifting cultivators'. Rarely are they studied as 'peasants' who have strategies for coping with various conditions of their natural, economic and political environment, and who combine the use of various natural resources such as land for cultivation and forest for other purposes in interlinked and interdependent ways. A further weakness is the omission of the monetary aspects of forest resources for tribal communities. While the material aspects of forest resources for subsistence (food, fuel, fodder, construction material etc.), together with socio-cultural (religious, political) aspects are given due importance, the provision of a cash income from the forest is given less attention. Few serious analyses are made to evaluate the cash value of forest resources for tribal forest dwellers and the economic rationale behind the sale of forest resources in the broader context of subsistence and market economy.

Moreover, in many of these studies, tribal villages are represented as communities consisting of rather homogeneous households, the only general differentiation possibly being made between men and women. Little or no consideration is given to individuals, to inter- and intra-household relations, gender relations within the household, and aspects of bargaining power and conflicts embedded in larger socio-economic and political structures. In addition, the dominant perception of tribal communities as victims of colonial and post-colonial processes, often assigns them either a passive, or at best, a reactive attitude.

[6] For a critical few of this approach see Agrawal et al. 2001.

[7] For a critical review of a long established divide between agrarian studies and environmental studies in India and elsewhere see Agrawal et al. 2000: agrarian studies focus on agriculture while environmental studies focus on an environment constructed as 'nature' in opposition to 'culture'. Forest in environmental studies often figures as 'nature' par excellence. Agrawal introduces the concept of 'agrarian environment' to focus on "the interwoven dynamics between the agrarian and the environmental worlds" (p.5).

Linked to a perception of tribal communities as homogeneous groups, are unquestioned assumptions of well functioning common property management institutions, eroded by almighty exogenous (state) interventions and processes. Tribal communities are often portrayed as having all the necessary requirements to fulfil Ostrom's design principles for sustainable management of common pool resources as common property (Becker and Ostrom 1995). Traditional institutions moreover are thought to have the purpose of sustainable resource use, as though the ultimate purpose of every institution to direct resource use would be sustainability. Thus, certain religious taboos and restrictions, with regard to the collection of selected forest products are interpreted as barriers, which impede the overuse of these resources. There is, however, little data to substantiate the assumption that without such taboos these resources would be overused; to provide such data would require detailed quantitative research in the context of complex ecological settings.

This study analyses the situation of two tribal villages, highlighting issues considered important for dealing with the problems of environmental degradation and with strategies for involving the local communities in problem solving. The focus of this research is on the economic and political framework of the use of forest and land resources of two villages in Keonjhar District[8], Orissa. Wage labour, as a further means of income generation is also included in the study of the local economy.

The starting point of the economic analysis is the assumption of the rational behaviour of peasants. They act in an economically rational manner, opting for economic strategies which satisfy their needs best under certain given conditions. However, their needs are not solely of an economic nature; they include aspects of social status and identity. Thus, economic decisions made by peasants, are conditioned not only by aspects of economic efficiency, but also by norms and values linked to ideologies of social status, identity and gender (see Lipton 1982).

Although households are considered to be the main and most central economic units, this study takes into account intra-household relations structured by household composition, gender and age. Such an approach reveals the strategies of individual members who possess varying opportunities, different bargaining power and fallback positions, so that the economic behaviour of a household is not necessarily the result of a joint economic strategy, but the outcome or result of the strategies of its individual household members.

In contrast to assumptions of socio-economic homogeneity of tribal villages and communities this study covers aspects of heterogeneity and difference among households and ethnic groups, as well as their economic interrelations within the village community. Such an approach is even more appropriate in the context of a village with a mixed population of three different tribes and one caste, as is the case of one of the two villages under study.

Thus, individuals, households, ethnic groups and village communities, as different and interlinked social units are analysed with regard to various aspects of use and management of land and forest resources. Wage labour as a further source of income is also given due consideration.

With regard to forest resources, special attention is given to timber and fuel wood carried to the market for sale. I assume that the monetary value of forest resources is of crucial importance to the understanding of the forest resource use patterns of the villagers, although so-

[8] The district sometimes is also named Kendujhar: For the purpose of this study, Keonjhar will be used except where it is quoted in literature otherwise. The district capital has the same name and sometimes it is referred to as Kendujhargarh.

cio-cultural values of forest resources should not be neglected. I suppose that the economic value of forest resources determines local resource use patterns more than socio-cultural values; especially in the context of poverty.

The analysis of the local economy is a pre-condition for the study of local village forest politics in chapter 5, where issues of forest management as a common property regime are elaborated. The history of forest policy in the study area, relativises the predominant narrative of an almighty state control over forests in tribal areas since British colonialism. I also call into question general assumptions of well functioning local institutions to control access to, and use of, forest resources by the forest dwellers. Instead I focus on questions of why and how villagers try to create new institutions to control and protect their village forest and on problems of collective action. The dilemma of forest protection and destruction by local users is studied by using the analytical framework of Ostrom's design principles for sustainable management of common property resources. Also studied are the chances and risks taken by a local community, in its endeavour to protect its local forest, without intervention from the state.

Chapter 1 includes information about the methodology of the study as well as general data on the research setting. Chapter 2 gives some preliminary information on the two villages under study and indicates aspects of heterogeneity and homogeneity, which play a major role in resource management of common property as discussed by Ostrom and others. Chapter 3 comprises the study of the local economy: agriculture, wage labour and wood selling are analysed with regard to variables such as quality and availability of agricultural land, wage labour, forest resources and returns to labour of these various economic activities. Chapter 4 evolves around economic strategies of individuals, households and ethnic groups in the given context. Chapter 5 deals with state forest policy and with local village forest politics. Conclusions are outlined in chapter 6.

1.2 Material & Methods

1.2.1 Literature

There is a broad spectrum of social and anthropological literature relating to tribal peoples in India and also Orissa. Regrettably, a few well-researched and substantiated studies are far outnumbered by a large amount of superficial literature about a broad range of aspects of tribal life, society and culture.

Research for literature about the Juang, the main tribal population in the two villages under study, was also carried out at the Tribal Research Centre in Bhubaneshwar. This institute edits a journal called 'Adibasi'. Although the Juang are well represented in a number of articles, most have little or no factual information to add, to that produced by McDougal and Bose several decades ago. Few Indian anthropologists appear to have a genuine interest for serious fieldwork among tribal peoples, including the Juang. Repeatedly, the Juang figure as one of the 'most primitive tribes' of Orissa in such articles, a statement which possibly demonstrates a lack of field experience on the part of the authors – had they spent some time with the Juang they would most probably have come to a different conclusion.

Few other ethnographic studies have new data to add, but elaborate on one or other known aspect of Juang society and culture.

1.2.2 Selection of the research area

For two main reasons I decided to follow up my research questions in Orissa. Firstly, from 1995 to 1998 as a scientific assistant, I was, involved in a research project on 'Indigenous Knowledge on Forest' conducted by the Chair of Forest Policy and Forest Economics, Swiss Federal Institute of Technology. One region chosen for the project was Orissa, where two teams of Indian anthropologists and botanists carried out research in several tribal areas, investigating various aspects of the interrelation of tribal communities and forest environments. Due to my work, which also included journeys to Orissa, I became more familiar, not only with the subject, but also the area. Secondly, Orissa combines a high percentage of tribal population with a comparatively high percentage of forest, making it not only an ideal region for studying the connections between indigenous peoples, forests and state control, but also for testing controversial assumptions, in the more general academic and political debates on this subject.

My decision to carry out fieldwork among the Juang in Keonjhar District, was based on the fact that their social organisation and traditional institutions had been comparatively well documented in the 1960s, by the American anthropologist McDougal. The Indian anthropologist Saradindu Bose, had in the same period, completed an analysis of the carrying capacity of land under shifting cultivation in three Juang villages. Based on these studies, which contained valuable information about the local situation some forty years prior to my own research, I decided to select villages predominantly inhabited by Juang. Moreover a team of local anthropologists and a botanist of the above mentoned research project 'Indigenous Knowledge on Forest' carried out ethnobotanical research in the core Juang area under the guidance of Dr. Nityananda Patnaik. To have data based partly on similar research interests as my own was an additional incentive to do field work among the Juang.

1.2.3 Fieldwork

1.2.3.1 Village Selection

During my initial stay in Orissa, in 1996, I visited several Juang and Bhuiya[9] villages in Keonjhar District and had brief discussions with some of the inhabitants about the situation of their local forest. It transpired that these villages varied with regard to several factors such as tribal and caste composition, the availability, quality and quantity of forest, agricultural practices (shifting cultivation, permanent paddy cultivation or a combination of both), distance to markets (making wood selling a viable economic option), as well as the presence or absence of local forest protection activities.

During a second field trip in 1997, I visited some additional Juang villages in Banspal Block[10] and I finally opted to carry out fieldwork in the villages of Kodipasa and Upper Kansa, for several reasons. The two villages differed with regard to their size, ethnic composition, agricultural practices and micro-environmental conditions, as well as local forest protection activities. However, both had relatively easy access to the district capital and were involved in commercial wood selling. As the purpose of my research was to analyse the management and significance of forest resources in a changing environment and as changes near

[9] The Bhuiya are tribal neighbours of the Juang. Spelling of names of tribes varies considerably in literature: the Bhuiya also figure as Bhuya, Bhuyan and Bhuinya. In this study, the term Bhuiya will be used except in quotations.

[10] In Keonjhar, the Juang are mostly concentrated in Banspal, Telkoi and Harichandanpur Blocks.

the towns are more pronounced, these two villages fitted these criteria. The fact that one village had initiated village forest protection activities some years ago, while the neighbouring village bordering it took no measures to protect its forest, was another reason to select this area for study. The comparison of these two villages allowed me to consider problems of forest use, management and protection in different contexts and in a comparative manner.

An initial attempt to start field research in these two villages, towards the end of 1997 failed due to problems of obtaining the necessary research visa. The villages were located in a so-called 'tribal area'. 'Tribal areas' are defined by the Orissa State Government and, as such, special rules apply to them. One such rule is restricting access to the villages by foreigners. Finally, my research proposal was given approval by the Indian State Government including the two villages I had selected for fieldwork.

Circumstances for my fieldwork became again difficult when in January 1999 an Australian missionary was killed in Keonjhar District. For my protection, two policemen were posted in the villages where I carried out field research. This situation not only made it difficult for me to carry out my research, but also caused unrest among the villagers. Consequently, it was then necessary for me to leave the villages for several weeks until the political situation had calmed down.

1.2.3.2 Finding a guide

While waiting for several months in Cuttack for my research visa, I searched for literature and introduced my interpreter and local guide Champak Kumar Sahu into my research project. He had an M.A. in Anthropology. And as a peasant's son he was familiar with life in a village. Belonging to a caste of OBC (Other Backward Classes), he had no reservation towards the tribal villagers. His local knowledge and practical know-how were of inestimable value to me. After some time he became much more than a local guide and interpreter; he became a scientific assistant with a genuine interest in the research that I was involved in. In 2007 he has submitted his own thesis on "Use and ownership of land among the Juang of Keonjhar District, Orissa."

The lingua franca of the villagers is Oriya, although each of the three tribal groups has its own language. Conversations with the villagers were conducted in Oriya and translated by my guide into English. After some time I acquired some understanding of Oriya which helped me to follow conversations.

1.2.3.3 In the villages

Finally, field research in the villages was undertaken between November 1998 and July 1999. I had visited Kodipasa and Upper Kansa twice already during short exploration trips in 1996 and 1997 in Keonjhar. During my third visit to Kodipasa and Upper Kansa, I told the villagers about my plan to stay for several months in their villages, and asked for their permission. They were rather indifferent, if not to say reluctant to welcome me, although I was no longer a newcomer. I realised that it would not be easy to convince them as they seemed rather suspicious of foreigners and hid their curiosity for a foreign woman who looked quite different from other outsiders.

However, the former political head (*sarpanch*) of Kodipasa *Gram Panchayat* (village council of several villages) agreed to check if there was a possibility of us renting a room in Kodipasa. Finally, Nila Juang, a widow, agreed to let us live in a small vacant house. The fact that there was no tea stall in the village, together with our efforts to invite the villagers to drink tea on our forecourt, helped us to break the ice. However, it took quite a long time for the villagers to become accustomed to our presence and make us feel welcome. We had ex-

plained to the villagers that we would like to study agriculture and forest use in their area and learn how people lived in this village. They understood this because it was obvious that I came from a rather different area, but it was difficult for them to believe that we did not belong to either any NGO or government agency. Linked to such speculations there were expectations, sometimes mixed with mistrust and disappointment, that we did not solve their problems. As we were collecting data on land issues for example, some villagers believed that these data would be used as criteria for selection in development programmes or exclusion from the benefits of such programmes.

With my interpreter and research assistant, I lived in the Juang quarter of Kodipasa; the traditional centre of the village. All other hamlets from the village were easily accessible from this point. Within approximately 40 minutes walk we were able to reach the other village (Upper Kansa), which we visited regularly for several hours or a whole day at a time. Villagers from Upper Kansa frequently visited or passed through Kodipasa. This gave us the opportunity to gain information about what was going on in Upper Kansa without having to be there on a permanent basis.

From the outset, we made sure that we gave equal attention to all villagers, regardless of their ethnic or caste affiliation.

During September and October 2003, I revisited the two villages and collected additional data. I was again assisted by Ch.K. Sahu; now accompanied by his wife and their three-year-old daughter. The reception by the villagers this time was cordial in comparison to our first stay and our research was far easier to carry out, as the villagers had overcome their initial distrust of us.

1.2.4 Data collection

1.2.4.1 Participant Observation

While visiting families in their compounds, discussing with the men in the *majang* (men's house), meeting people in their fields, in the forest or at the market in the town, we observed and also discussed various aspects linked to my main research interests. We also had the opportunity to attend several rituals and participated as guests in such events in both villages.
After general and loosely structured conversation with several villagers, we then focused on more specific issues. It soon became apparent to us who it was that had extensive knowledge of certain topics and was also willing to spend time with us, so that we visited some houses and villagers more than others.

In Kodipasa we were close to the every-day life of our neighbours including the widow who had rented her house to us. This allowed us to observe and discuss what was going on in several households. As our house was situated on the main road, in the centre of the Juang area, it was easy to chat with villagers who passed by. In the mornings and evenings we often shared tea with visitors at our house. There were no apparent barriers for the villagers, as to who could enter our house, and we therefore spent considerable time with children and married and unmarried men and women of all age groups and ethnic groups. Such contacts were however more intensive with the villagers of the Juang hamlet including the Gouda; the caste of milkmen. Villagers from other hamlets as well as villagers from Upper Kansa visited us less frequently.

Accompanied by Juang from Kodipasa or Upper Kansa, we also visited neighbouring villages and collected some basic information by discussing with the villagers aspects which were closely linked to central issues of this research. Although such visits, without collecting

quantitative data, yielded rather impressionistic information, they indicated differences or similarities to the villages of Kodipasa and Upper Kansa.

1.2.4.2 Household Census

Basic data on demographic and socio-economic issues were collected by conducting a census covering all 136 households of the two villages. This was a time-consuming and challenging exercise. The questionnaire included closed and open questions. Closed questions mainly related to household composition (number, sex and age of household members), clan membership and occupational activities (agriculture, wood selling, wage labour) of the various household members. Questions relating to land tenure turned out to be too complex to be covered by the census alone and required additional data collection. Open questions related to issues of migration, land transfer and use of land and forest.

We visited and spent some time in every household, several of which had to be visited more than once to clarify data. The census not only yielded information to specific questions, but additional insights into household situations.

1.2.4.3 Other Sources

Data collection was also carried out at government and development agencies. The land register at the Tahsildar office of the Revenue Department yielded valuable information about the land settlement, quality of the land and land tenure in the two villages. Government institutions such as the Integrated Tribal Development Agency (I.T.D.A.) and the Block Development Office held some general data on the Juang and other marginalised groups. Information about forest related aspects were collected from the district forest department. In discussions with the staff and officials of these agencies, quantitative data was supplemented with additional information from those who were involved in the issues of land, forest and tribal development in the research area.

A valuable source of a wide variety of general and detailed information about the district was the Orissa District Gazetteers, Kendujhar (1986). The District Statistical Handbook from the Directorate of Economics & Statistics, Orissa also offered data on a broad range of issues.

1.2.4.4 Data Analysis

During fieldwork, occasional trips to Cuttack were made, so that data collected could be roughly analysed. Based on our preliminary findings decisions about further proceeding of field research were made. Upon returning to Switzerland, quantitative data from the census was processed, using Excel. Diaries kept during fieldwork provided a central basis for data analysis and written reports.

1.3 Environment and people of the research area

Before giving general data about Keonjhar District, some geographical information about Orissa will help to situate the area of fieldwork in a broader context.

Map 3: Orissa in India (source: Jena et al. 2006; p. xxiii)

1.3.1 Geography

The State of Orissa is situated on the East Coast of India and extends from 17°49'N to 22°34'N latitude and from 81°27'E to 87°29'E longitude, with a total geographical area of 155,707 sq. km.[11] It is surrounded by West Bengal and Jharkhand to the North, Andhra Pradesh to the South, the Bay of Bengal to the East and Madhya Pradesh to the West. Although situated on the coast with a coastline of about 500 km, the bulk of the state area is hilly and mountainous.

Based on physical features and agro-climatic conditions, Orissa can be roughly divided into four zones: (1) The northern plateau which is an extension of the Chotanagpur Plateau covering Mayurbhanj, Keonjhar and the eastern Sundergarh area. It constitutes 23% of the state's total geographical area. The central portion of this plateau contains many small hills and forests. (2) The central tableland constitutes another 23%. (3) The Eastern Ghats, constituting 36% of Orissa's landmass, run along the length of the state and then merge with the Chotanagpur plateau. (4) The coastal plains in the east make up the remaining 18%.

Orissa is located in a climatic region known as tropical wet-dry (or tropical savanna). It has a tropical monsoon climate, with erratic distribution of rainfall, often resulting in floods, droughts and cyclones. Temperatures average about 26ºC, with the lowest average temperature in January at 20ºC and the highest mean temperature rising to 33ºC in May. Average annual rainfall in the state is about 1800 mm (Encyclopaedia Britannica 2002).

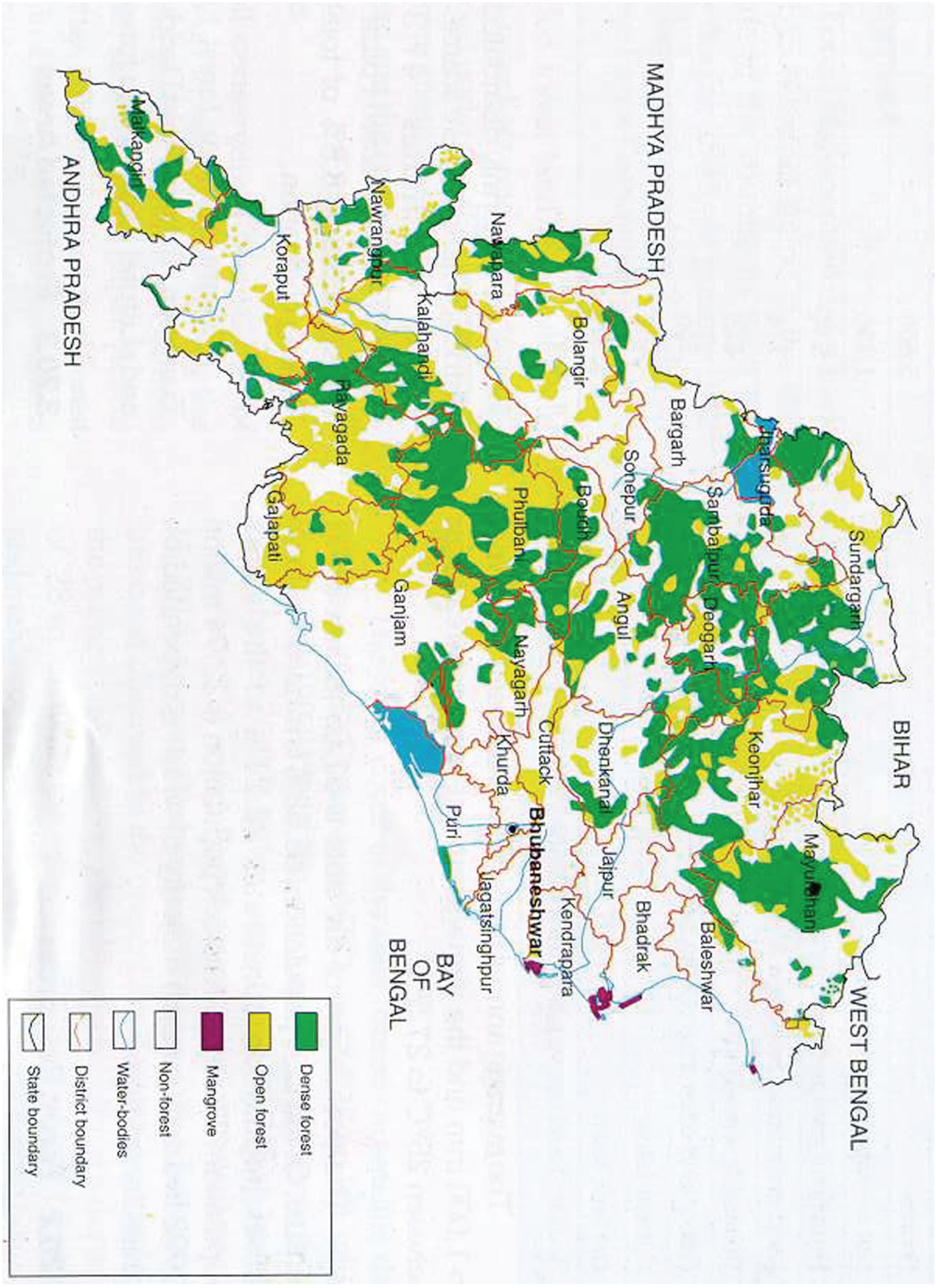
Data on Orissa's forest coverage are contended for various reasons (technical, political) and by various stakeholders. In 1971-72 it was estimated to be of 43.5% of the whole area. According to the Statistical Branch, Office of the Principal Chief Conservator of Forest, Orissa (1993) the forest area declined to 36.27% of the total geographical area. But forest on paper does not necessarily correspond to actual forest cover and the forest department itself estimated in 1990 that the percentage of actual forest cover to recorded forest cover was only 79.1%, i.e. 30.3% of the total geographical area (A Decade of Forestry in Orissa, 1981-1990). Other estimates indicate actual forest cover to be no greater than 20% of the total geographical area (Fernandes 1988:15). This evidence suggests that there is an overall decrease in forest vegetation.

The main types of forests are dry deciduous (approx. 50%) and moist deciduous (approx. 30%), the remaining 20% consist of various types such as semi-evergreen, littoral and tidal swamp forests. Dry and moist Sal *(Shorea robusta)* forests are predominantly found (Fernandes 1988:15). Forest vegetation is concentrated mostly in the hilly and mountaineous hinterland, while flat tablelands, plains and river valleys are sparsely endowed with forests but more intensively used for cultivation; mainly of rice.

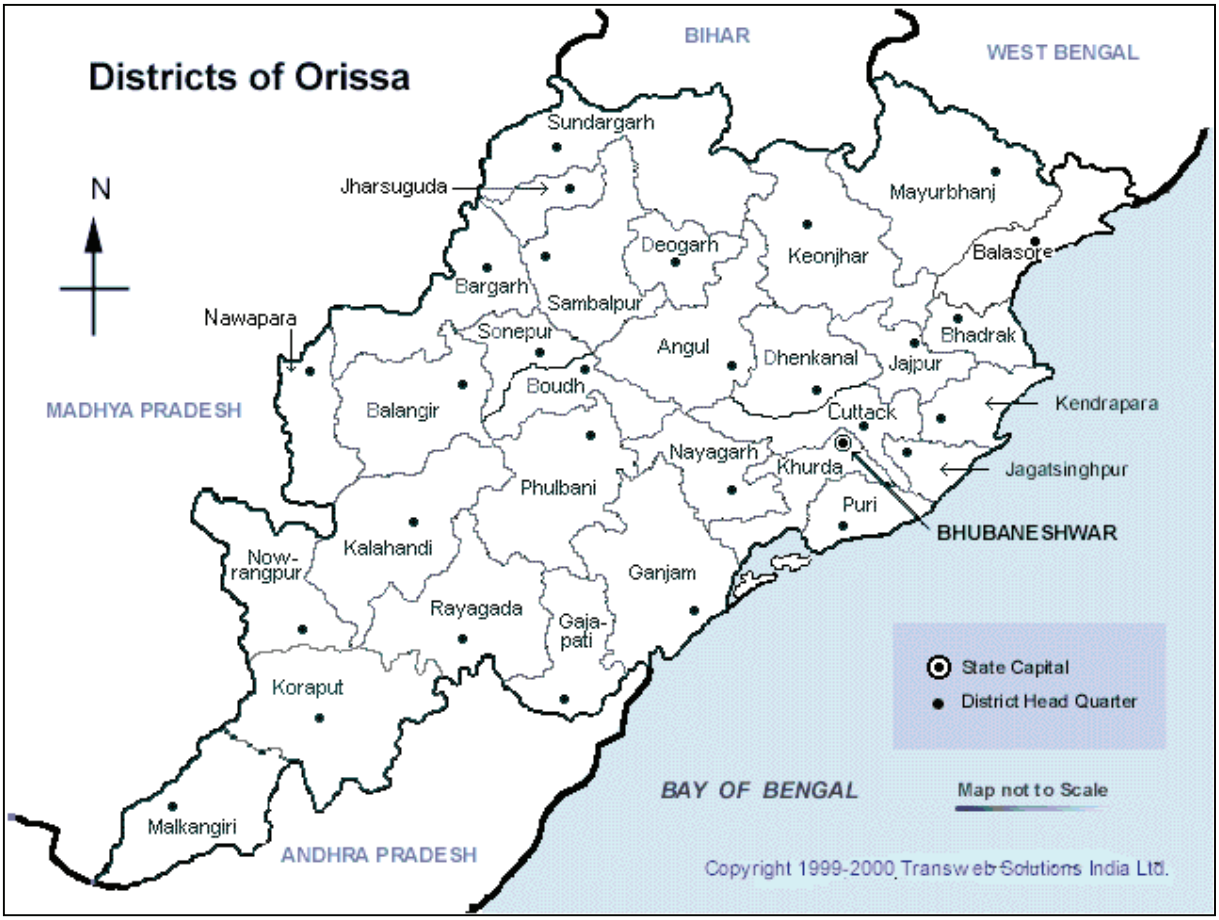
1.3.1.1 Topography of Keonjhar

Keonjhar District is bounded in the north by the Singbhum District of the new State of Jharkhand (previously southeastern part of Bihar), in the east by the districts of Mayurbhanj and Baleshwar, in the south by the districts of Cuttack and Dhenkanal and in the west by the districts of Dhenkanal and Sundargarh. It is a land locked district lying between 21°1'N and 22°10N latitude and 85°11'E and 86°22'E longitude, extending over an area of 8303 sq. km.[12] Its extreme length from north to south is nearly 145 km and the average breadth from east to west is about 65 km.

[11] Statistical Branch, Office of the Principal Chief Conservator of Forests 1993.
[12] District Statistical Handbook Keonjhar, 1993:1.



Map 4: Forest Cover of Orissa (State of Forest Report, Forest Survey of India, Dehradun 1999)



Map 5: Districts of Orissa (http:/www.mapsofindia.com/maps/orissa/districts / kendujargarh.htm)

Topographically the district is divided into two different tracts - referred to as 'Upper Keonjhar' and 'Lower Keonjhar' - approximately extending along a line from a northwesterly to southeasterly direction.

Upper Keonjhar, or the western tract, consists of a range of hills including mountainous highlands, with a general slope from north to south, extending the length of the western part of Keonjhar District in an arc from northwest to southeast. This hill range forms the watershed between the Baita*Rani* and Brahmani rivers, and the average elevation of the central part of the highlands is about 500 m. Although the mountain tops "appear from the low lands to be sharply ridged or peaked (....) they have extensive table-lands on their summits, fit both for pasture and for tillage" (Government of Orissa, ODG 1986:4). The hills of western Keonjhar are the homeland of the Juang and the Hill Bhuiya. This area is described by McDougal as:

> "(...) a region of flat topped hills separated by V-shaped valleys, containing little level bottomland, although there are exceptions, particularly in the northern part of the region. (...) The underlying rock formation of the table land is basalt of Archaic age; the surface soils contain a high percentage of laterite. There are numerous outcroppings, and the soil is very rocky, the rocks being chiefly of limonite, containing a low percentage of poor grade iron ore. The ground surface is hard, particularly in the hot months prior to the rains" (McDougal 1963:22-23).

Extensive flat tops are mainly to be found in the higher tracts, whereas the tops of the lower hills are limited "and look like conical hills from a distance, particularly from the plain" (Bose 1967:89). This landscape is well dissected by headwaters and upper tributaries of various rivers and hill ranges running in various directions and aligned in a variety of forms. The largest river of Keonjhar District, the Baita*Rani*, rises in the heartland of the Juang, at Gona-

sika, and flows due north as a hill stream until it reaches the Sighbhum border, where it abruptly turns to the south.

The eastern tract or Lower Keonjhar emerges in a gentle slope from the belt of the hills of Upper Keonjhar, and then spreads into an open plain towards Cuttack District. It is a region of valleys, lowlands and fertile plains. Lower Keonjhar contains little jungle, and is dotted with only a few low isolated hills. It is well cultivated and thickly populated; mainly inhabited by Oriya peoples (ODG 1986:4-5).

The two villages under study are situated in the transition zone of these two tracts.

1.3.1.2 Forest vegetation

According to the Statistical Branch, Office of the Principal Chief Conservator of Forests, Orissa (1993), the forest area of Keonjhar District, with 2,494 sq. km, amounts to 30% of the total geographical area. However, these data are open to contention for the same reasons mentioned above for the general forest situation in Orissa. The general pattern of higher forest concentration in hilly areas, in comparison to plain land of Orissa, is repeated within Keonjhar District itself: Upper Keonjhar has more forest areas than Lower Keonjhar.
The forests of Keonjhar are:

> "(...) of monsoon type locally classified as (a) tropical moist deciduous forest and (b) tropical semi-evergreen forest. The Sal (*Shorea robusta*) forest with mixed community of species represents the climatic climax whereas the dry deciduous vegetation and thorny xerophytic communities characterise various stages of degradation or edaphic climaxes. Within these broad divisions of monsoon forest occur characteristic vegetation types depending upon local habitat or niche.
> Tropical moist deciduous forest is chiefly characterised by *Shorea* (Sal: O), *Terminalia, Diospyros* and *Schleichera*. The species largely comprise *Shorea robusta, Terminalia tomentosa, Diospyros melanoxylon, Schleichera oleosa, Anogeissus latifolia, Ougeinia cojenensis, Adina cordifolia* and *Protium serratum*.
> Tropical semi-evergreen forest is confined to hilly area and characterised by *Diospyros, Macaranga, Dillenia, Mesua* and *Strychnos*.The association comprises *Diospyros peregrina, Macaranga peltata, Dillenia pentagyna, Mesua ferrea, Strychnos potatorum,* Syzygium cumini, *Terminalia belerica,* etc. " (ODG 1986: 16-33).

The forest areas of the Bhuyia and Juang pirhs[13] are classified as 'moist peninsular low level sal' by Champion and Seth and come under sub-group 3C.-North Indian Tropical Moist Deciduous Forests (Champion and Seth 1968:120). Mainly inhabited by tribal shifting cultivators, forests in this area have been exposed to human interference for some considerable time. According to Champion and Seth (1968:121) the dominance of Sal (*Shorea robusta*) has been intensified by human activities:

> "(...) wherever the population has been dense enough to press on the forest. Sal is very generally more aggressive than any of its associates and competitors in natural gregarious habit, coppicing power, resistance to burning, regeneration under burning and grazing, adaptability to soil and site conditions, and longevity".

However, too much pressure prevents the Sal population from producing sal sprouts and to form high forest with a top canopy of 25 to 40 metres in height. Sal trees in the Bhuiya-Juang pirhs thus mainly consist of young pole crop with a small girth only.

[13] In the past western Keonjhar was divided for administrative purposes into *pirhs* as territorial units, each containing a number of villages. Four of these pirhs were referred to collectively as *Juang pirh* (sing.). The group of pirhs inhabited by the neighbouring Hill Bhuiya were called *Bhuya pirh*. (McDougal 1963:58) The tribal area inhabited by the Bhuiya and the Juang is sometimes referred to as *Bhuya-Juang Pirh* (sing.). Sometimes the term *Bhuyanpirh* even includes the Juang pirhs.

The deciduous period of Sal is very short, with only five to fifteen days at the beginning of the hot weather. Shade from the new foliage keeps the sal forests cool, in contrast to fully deciduous forests.

1.3.1.3 Soil, erosion

With regard to soil conditions in Upper Keonjhar, Bose (1967:89-90) gives the following characterisation:

> "The basalt is decomposed but the soil cover is not sufficiently thick for ploughing anywhere, except in the valley bottom. Flat tops generally have black soils but the soil cover is too thin for successful cultivation. Laterite and red soil are common and generally cover the hill slopes. The minerological composition of the soil collected from different sites and situations is fairly uniform. Sesqui-oxides are most prevalent and is in the order of 25% though in locations it may be as low as 11% and as high as 35%. The percentage of Fe_2O_3 varies from 5-14%, the average being 10%. Other minerals present to a small quantity are CaO, K_2O, P_2O_5 and nitrogen."

According to the forest department erosion is a 'common feature' of Keonjhar and the practice of shifting cultivation is perceived to be one of its main causes:

> "Erosion and eroded lands are a common feature of Kendujhar District. This is due to extensive shifting cultivation in certain areas resulting in frequent flood and soil loss. The hill-sides, particularly in the Bhuyan and Juang pirhs, have in many cases been completely stripped of vegetation and present merely expanses of barren rock. Shifting cultivation goes right upto the hill-top unconcerned regarding its effects down below" (Mahapatra 1984/85:5).[14]

However, the same report admits, that the problem of erosion is not only confined to areas of shifting cultivation, but

> "(...) it is noticed all over the district. (...) The process of erosion is progressive and each year fresh ground is broken up by this process to add to the vast area of unproductive land. Heavy encroachments into the reserved forests particularly in Palasapal and Rebna, contribute considerably to the process of soil erosion" (ibid.)

The issue of mining leases in reserved forests is judged to be another reason for soil erosion in the district:

> "Not only the forests have been seriously honey-combed but also the excavated earth after the mining operations is left dumped in heaps to be gradually eroded during rains every year." (ibid.)

> "Besides shifting cultivation, there are large areas around Suakati, Joda and Barbil which are prone to accelerated soil erosion due to wide scale exploitation of minerals from the mines. The agencies which are mainly responsible for the soil erosion in the district have scant regard for soil conservation practices like contour bounding and terracing. Large scale exploitation of natural forest in the last two decades, improper land husbandry, unprotected pasture, are many factors which are responsible in bringing about two fifth of the area of the district under various types of soil erosion" (ODG 1986:112).

1.3.2 Climate

1.3.2.1 Seasons

In the District Gazetteer of Keonjhar (1986:33), the year is divided into four seasons:

[14] According to the Orissa District Gazetteer of Keonhjar (1986:112), out of a total District area of 8,329 sq. km, 1,191 sq. km "are suffering from active soil erosion due to shifting cultivation. From recent satellite survey of the State of Orissa and from an imagery map it has been estimated that 40,638.2 ha [406.382 sq. km] of the district have been affected by shifting cultivation."

– the hot season lasting from March to May
– the southwest monsoon season lasting from June to September
– the post-monsoon season lasting from October to November
– the cold season from December to February

McDougal (1963:23) distinguishes only three seasons:
– the rains lasting from June to October
– the winter, from November to February, with cool nights and no rain
– the summer, from March to May with hot temperatures and no rain

May is the hottest month with the mean daily minimum temperature of about 25°C and the mean daily maximum temperature of about 38°C. The maximum temperature may sometimes reach 46°C. With the onset of the monsoon in early June, the daytime temperature drops. Both day and night temperatures decrease again progressively after the end of the monsoon in October. December is usually the coldest month of the year, with the mean daily minimum temperature of approximately 12°C. During this month the minimum temperature may drop to approximately 3°C (see also Statistical Handbook Keonjhar 1993:16).

The relative humidity is generally high, i.e. about 75 per cent during the southwest monsoon and post-monsoon months (i.e. from June to November). In other months, the afternoons are comparatively drier. On summer afternoons (March to May) the relative humidity varies by between 35 to 40 per cent.

1.3.2.2 Rainfall

The average annual rainfall for the district is officially given as being 1534.5 mm. Comparison of data of annual and monthly rainfall over recent years, shows considerable annual and monthly variations, indicating the uncertainties of the rainfall. Rainfall is one of the most important and critical factors for local agriculture, which is mainly based on rain fed cultivation. Even the small amount of irrigated paddy cultivation in the district depends on the use of surface water.

According to Bose (1967) the average annual rainfall in Keonjhar District varies from between 1300 mm to 1800 mm.[15] Between 1981 and 1998, the deviation from the normal average rainfall varied from between 364.5 mm above the normal average to 407.5 mm below the normal average, indicating a larger variation than assumed by Bose in the 1960s. However, statements of a general decline of rainfall as stated by Nayak et al. (1993:4) cannot be confirmed, considering the statistical data since the 80s.

Table 1: Annual rainfall in mm in the research area (available years)

Year	Keonjhar District	Banspal Block
1981	1277	
1982	1363	
1983	1788	
1984	1656	
1985	1899	
1986	1631	
1987	1127	

[15] There was no observatory as such in the district before 1957. Only rainfall data of three stations within the district were available for a period ranging from 27 to 63 years (Bose 1967:90).

1988	1539	
1989	1504	
1990	1860	
1993	1461	1195
1994	1292	
1995	1184	1166
1997	1447	1328
1998	1193	1105

(Data for the years 1982-1987: District Statistical Handbook Keonjhar 1989-90; pg. 12 / Data for 1986-90: District Statistical Handbook Keonjhar 1990-91; pg. 9 / Data for 1993: District Statistical Handbook Keonjhar 1993: pg. 15 / Data for the years 1994-1995: District Statistical Handbook Keonjhar 1995: pg. 18 / Data for 1997-1998 personally collected at the District Statistical Office Keonjhar on 02. June 1999)

About 75 per cent of the annual rainfall occurs during the southwest monsoon season (June to September). The hills have generally more rainfall than average for the district. The average annual rainfall, in the hilly region of Upper Keonjhar, is indicated by Bose as 1651 mm (65 in.).

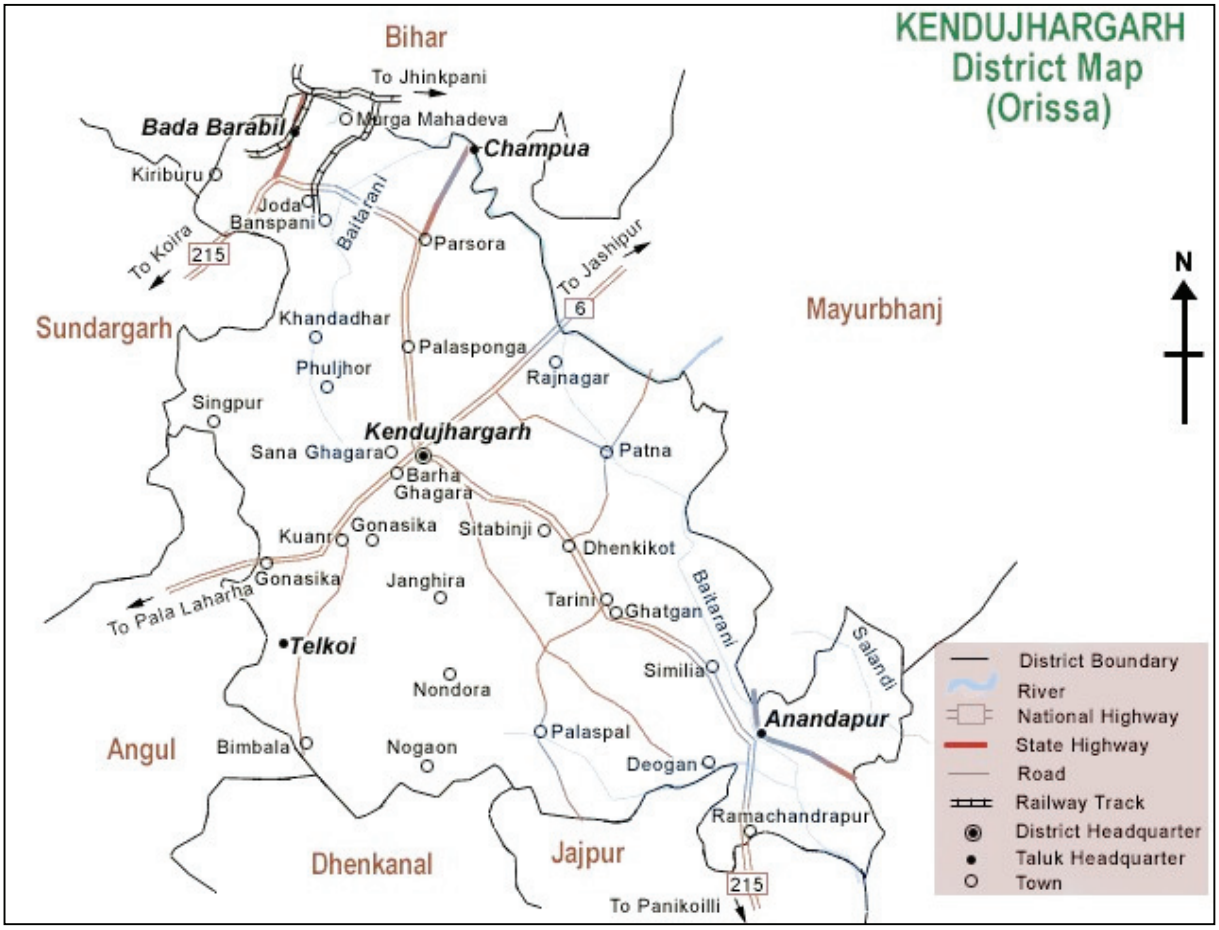
Monthly variations, both in the quantity and timing of rainfall clearly show the unpredictability of rainfall, which is a crucial factor for agricultural production. Thus 1998 was considered as a "drought" by the people in the research area, whereas the year before, 1997, was a fairly good year with regard to agricultural yields. Moreover, the same amount of annual rain may result in a good or bad harvest for the farmers, depending on the rigth or wrong time of rain or no rain, too much or too little rain.

Table 2: Monthly rainfall variation in Banspal Block (rainfall in mm)

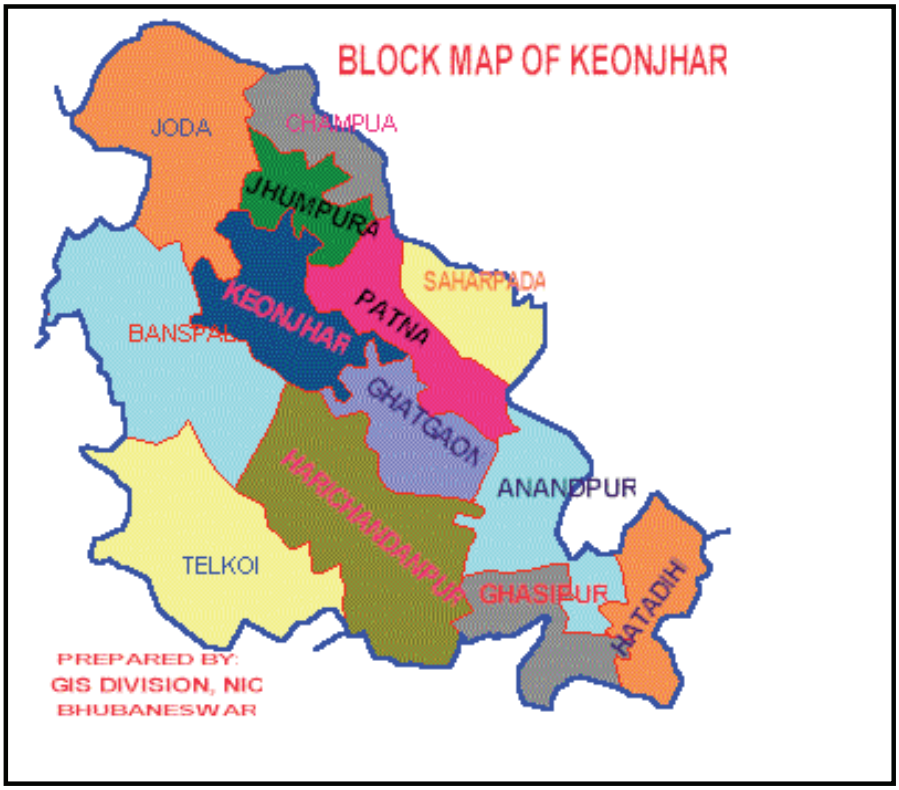
Month	1993	1995	1997	1998
January	0	51	0	48
February	0	34	0	12
March	0	0	43	12
April	64	0	95	21
May	112	157	37	31
June	255	83	290	237
July	230	209	302	228
August	247	318	285	140
September	218	177	134	252
October	58	69	56	97
November	11	65	41	27
December	0	3	45	0
Total	**1195**	**1166**	**1328**	**1105**

1.3.3 Administrative setting

Orissa is divided into 30 districts. The Collector and District Magistrate "is in overall charge of the general, revenue and development administration of the district" (ODG 1986:239). As the District Magistrate, he is also responsible for the maintenance of law and order. He is assisted by several officers in various other departments. The district-wise administrative set-up of Keonjhar contains 3 Divisions, 8 *Tahsils*, 13 Blocks and 286 *Gram Panchayats*. *Tahsils* are administrative units for efficient revenue administration, while Blocks are administrative units created to implement the so-called Community Development Programme. *Gram Panchayats* are councils of several villages with elected ward members and a *sarpanch* as the political head of this body. Although introduced in the 1950s in order to promote local self-govern-



Map 6: Keonjhar District



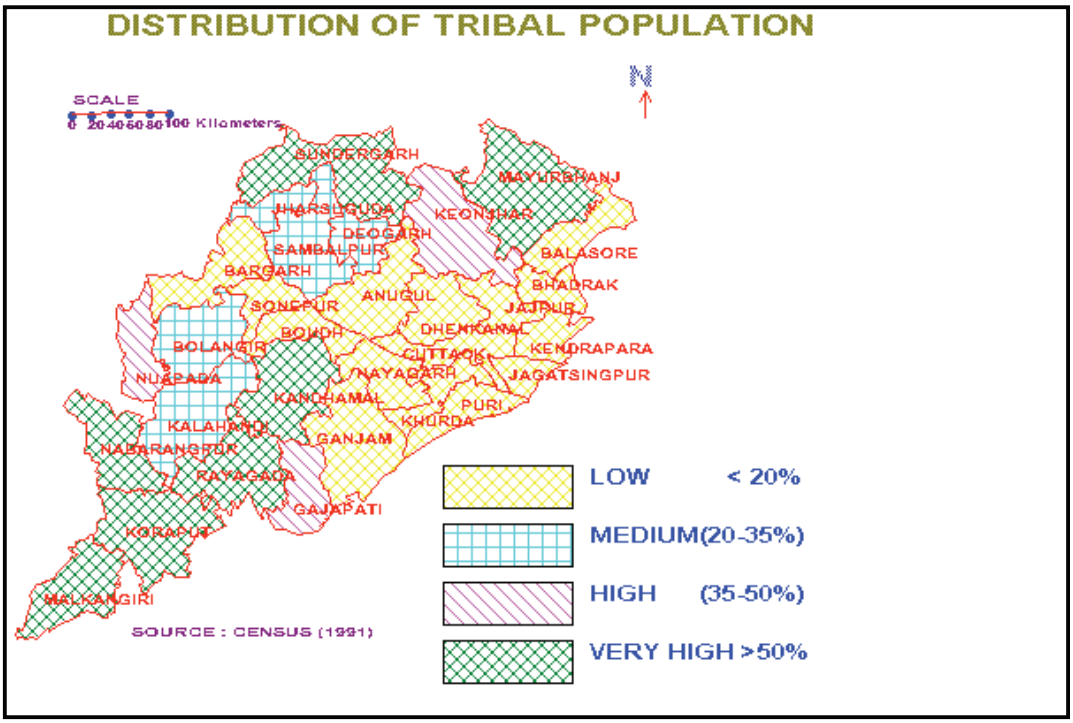
Map 7: Blocks in Keonjhar (source: http://ws.ori.nic.in/gis/html/keonjhar/keon.htm)

ment and to support decentralisation, the *Gram Panchayats* mainly function as links for government officials from various Departments and Blocks, to implement programmes and policies in a rather top-down manner.

The two villages, Kodipasa and Upper Kansa, belong to Keonjhar Division, Keonjhar *Tahsil*, Banspal Block and Kodipasa *Gram Panchayat*.

1.3.4 Social and ethnic background

The society of Orissa is a complex patchwork of an enormous variety of ethnic groups with various origins, histories, languages, occupations and religious affiliations, embedded in an equally complex web of interrelations which have been subject to many historical changes. Caste organization is still a prominent feature of the society of Orissa. Tribal societies in Orissa, as in other parts of India, are not beyond the caste system although tribes are commonly opposed to castes as a separate social category. Differences between various tribes, or between various sections of the same tribe (e.g. endogamous subsections) may be perceived in principles of caste organization. The same applies to perceptions of differences between tribal and non-tribal groups.



Map 8: Distribution of tribal population in Orissa as per Census 1991

The strong representation of tribal communities is a characteristic feature of Orissa. This region belongs to the so-called 'tribal belt' extending from the western to the eastern coast of Central India: a broad strip of sal, teak and acacia forests transecting the subcontinent from Bengal to Gujarat shelters the majority of India's tribals, who exceed 84 million in total. According to the 2001 census, Orissa's tribals account for approximately 23% of its total population[16], which is a relatively high percentage compared to the average of 8.2% per cent for India as a whole. The tribal population of Orissa consists of more than 60 so-called 'Scheduled Tribes'; an administrative category created by the Indian Government to take into considera-

[16] In the Census of India in 2001, Orissa had a total population of 36,706,920.

tion the specific conditions of tribal communities. Their geographical distribution in Orissa is uneven, but they tend to be concentrated in the hilly areas of the hinterland. The coastal districts in the plain (Balasore, Cuttack, Puri) show low percentages of tribal population, whereas hilly and mountainous districts such as Koraput, Mayurbhanj, Sundergarh, Sambalpur, Keonjhar, Phulbani and Kalahandi represent higher percentages of tribal population (Sinha & Mishra 1987:81).

According to the Census of 1991, the tribal population of Keonjhar District (595,184) amounted to 44.52% of the total district population (1,337,026). Again, this shows an uneven distribution of the tribal population, with a higher concentration in the hilly and forested areas of Upper Keonjhar. The two villages under study belong to Banspal Block, where tribal population, according to the 1991 census, was the highest, in comparison to other blocks, with a total of 79.29%. The majority of the tribal population in Banspal Block belong to the Juang and Bhuiya.

The 1991 census also revealed that there were 46 Scheduled Tribes in the district. The principal sixteen tribes, which constituted 96.12% of the total tribal population of the district were: the Bathudi, Bhuiya, Bhumij, Gond, Ho, Juang, Kharwar, Kisan, Kolha, Kora, Munda, Oraon, Santal, Saora, Sabar and Sounti. Of these tribes, the Juang, Munda and Santal form part of the population under study here.

In 1991, 11.49% of the district's population belonged to more than 40 Scheduled Castes; the remaining 43.99% were General Caste people. Since census data no longer includes information on membership to a specific General Caste, no quantitative data on the demographic composition of the various General Castes are available. The Orissa District Gazetteers of Kendujhar lists 24 General Castes, but this list is incomplete. In Kodipasa, there are some families belonging to the General Caste of Gouda. No other General or Scheduled Caste are represented in the two villages.

1.3.4.1 The Juang and Bhuiya

By linguistic classification the Juang belong to the Munda speaking tribes of India. Munda speakers in India consist of around six million individuals divided into a number of separate ethnic groups. These populations are located in the Chotanagpur Plateau and its extensions (southern Bihar, northern Orissa, eastern Madhya Pradesh and western Bengal), with others centred in the Koraput district of southern Orissa and the Nimar district of western Madyha Pradesh (Parkin 1992:1). The Munda-speaking tribes of India are generally thought to represent part of an ancient Indian population stratum referred to as 'Pre-Dravidian', who at one time occupied a far greater area than they do today. It has been suggested that this population was absorbed or displaced by successive waves of Dravidian and Indo-European speaking peoples, who arrived at a later date, so that the present day representatives of the Pre-Dravidian population are largely confined to refuge areas (McDougal 1963:3).[17]

The theory of the Austrian scholar Pater Wilhelm Schmidt (1868-1954), that Munda is linguistically connected with the Mon-Khmer languages of Southeast Asia, which he called Austroasiatic, has come to be accepted, although with some modification, by most scholars working on Munda languages. However, theories claiming that the Munda tribes originated from south-eastern India have not been substantiated, as most of the evidence cited to prove Munda origin from Southeast Asia refers to material culture and economic methods, which may eas-

[17] Sarat Chandra Roy (1871-1942), "the pioneer proper of Munda ethnography" (Parkin 1992:13) not only classifies the Munda speaking tribes as 'pre-Dravidian', but also the Dravidian-speaking hill tribes, their indigenous languages most probably being supplanted by Dravidian ones.

ily be transferred between essentially alien cultures and not necessarily by waves of migration (Parkin 1992:3).

Parkin, whose work is essentially an account of Munda social organization, does not attempt "to argue in favour of any sort of linguistic determinism in cultural matters – quite the contrary, for it is clear that the Munda share many, if not most of their values with neighbouring low-status groups who speak Indic or Dravidian languages instead" (1992:ix). Nevertheless his analysis indicates similarities between different Munda tribes with regards to economy, descent and kinship, village organization and territoriality. McDougal (1963:3) also mentions "broad cultural similarities among most of the Munda-speaking tribes", although he does not give any further information as to shared cultural traits.

Dependent upon the classification of individual Munda languages as either dialects or separate languages, there are between ten and nineteen Munda languages. They are broadly classified into the two sub-groups of North Munda and South Munda. South Munda again is subdivided into Central Munda, North Koraput and South Koraput. According to this classification scheme the Juang belong to the Central Munda (Parkin 1992:18). The Juang speak their own Munda dialect, known as Juang. Like many other tribes in Orissa they use Oriya to communicate with non-Juang Speakers.

With a population of 35,665, as per the 1991 Census, the Juang are a rather small Munda tribe.

Keonjhar is believed to be the original home of the Juang in Orissa, and traditional Juang culture is to be found mainly here, whereas the Juang of neighbouring Dhenkanal district are more hinduized (Parkin 1992:33-34). The Juang of Keonjhar are known as 'thaniya' or 'original dwellers' in contrast to those living elsewhere, who are called 'bhagudiya', i.e. "those who have fled". The bhagudiya, more influenced by Hindu ideology, consider themselves superior to the 'thanya' and according to Bose (1929:51) there is no intermarriage or commensality between these two groups. The Juang of Dhenkanal have, to a large extent, become assimilated into the regional Oriya society. They live mostly in mixed villages alongside caste Hindu. They are primarily dependent on the cultivation of permanent, irrigated rice fields in the plains, whereas the Juang of Keonjhar are mainly dependent on shifting cultivation in the hills. The Juang of Pal Lahara, in the northern part of Dhenkanal, by contrast, have adopted basket-making as a mode of livelihood (McDougal 1963:5).

McDougal (1963:6) suggests that the migration of the Juang from their homeland in Keonjhar to Dhenkanal, was probably a result of overpopulation. E.T. Dalton, visiting the Juang of Keonjhar for the first time in 1866, mentions a local Juang tradition, according to which "very long ago, nine hundred Juangs left the country of their birth and went to Dhenkanal, and the Bhuyas came, and took up the lands of the brethren who had left them" (1872/1973:156). However, Dalton suggests, that the migrating Juang "were driven out by the Bhuyas who are now in those hills the dominant race" (ibid.). According to Nayak et al. (1993:8) the Juang of Keonjhar explain the root cause of their migration as being down to their legal system: "Those who deviated from the Juang code of conduct were punished by their village assembly usually through expulsion. Not finding acceptance in neighbouring Juang villages, those sent out travelled far out to as far as Palalahara and Dhenkanal to resettle". Patnaik (1989a:3) refers to another assumption made in relation to a tribal rebellion of the Bhuiya in 1861; part of the Juang having participated in that rebellion against the then feudatory ruler of Keonjhar fled to the neighbouring district "to take shelter there". Although this explanation for the Juang migration into Dhenkanal is less plausible, as the process of migration seems to have begun at a much earlier date, it is possible that some Juang may have escaped punishment by joining the Juang who had already migrated to Dhenkanal.

The Juang of Keonjhar inhabit the southern half of Upper Keonjhar. According to Juang mythology, they originated in the vicinity of Gonasika, a village near the source of the Baita-*Rani* river. It lies in the northern part of southern Upper Keonjhar. From there they spread into the neighbouring plains, the hills of southern Keonjhar and into other regions where they are presently found (McDougal 1963:5).

The other tribe, which mainly inhabits the range of hills in the north of Upper Keonjhar, are the Pauri Bhuiya, an Oriya speaking tribe. The Juang claim some mythological kinship relations to this neighbouring tribe: they believe the two tribes to be descended from two brothers, one of which ate beef and became Juang. The Bhuiya, who have a taboo against eating beef, consider the Juang as 'untouchables', and neither eat nor intermarry with them, although according to McDougal (1963:6) a few cases of intermarriage have been recorded. According to McDougal the Bhuiya "are the more dominant and powerful tribe" (1963:6). He refers to local traditions which state that the Bhuiya were responsible for the investiture of the first independent King of Keonjhar. "Whenever a king died, his successor had to be ritually invested with the symbols of the kingship by representatives of the Bhuya tribe" (1963:7). Although the Juang attended these ceremonies, their participation was of a more passive nature. E.T. Dalton similarly refers to the Bhuiya as the more powerful tribe: "It is probable that they [the Juang, N.O.] have been ousted by the Bhuyas from the fertile valleys, and are thus compelled to restrict their cultivation to the steep sides of hills (1973:156)." The prerogative of the Hill Bhuiya to install every new Raja was admitted by all inhabitants of the Keonjhar kingdom and gave them prestige. An efficient communication system helped the chiefs of the Bhuiya highlands to organize rapidly to defend their interests. This gave them considerable political power within the kingdom (Dalton 1973:146). The Pauri Bhuiya combine shifting cultivation with permanent paddy cultivation where possible.

1.3.4.2 The Munda and Santal

Both Munda[18] and Santal belong to the North Munda subgroup of the Munda speaking tribes. The Munda are the second largest Munda speaking tribe with a population of more than 750,000, most of who live in Jharkhand, parts of northern Orissa and northern Madhya Pradesh (Parkin 1992:23f). Before migrating over a long period of time, in either a southerly or south-easterly direction, they are believed to have lived in the southern part of what is today known as Uttar Pradesh (Roy in Parkin 1992:24). Their specific Munda language is Mundari. According to the Orissa District Gazetteer of Kendujhar they are primarily agriculturalists (1986:86).

The Santal are the largest Munda speaking tribe, and with a population of approximately four million, are also one of the largest tribes in India:

> "They, like other Munda, may once have occupied parts of the Gangetic plain, having been pushed into Chotanagpur subsequently by Hindu expansion; but their history before the mid-eighteenth century is obscure" (Parkin 1992:21).

Nowadays, the Santal are widely distributed between Bihar, Bengal and Orissa, but are also to be found in Assam, Meghalaya, Tripura, southeast Nepal, northwest Bangladesh and southern Bhutan (Gautam in Parkin 1992:21). In Orissa, they are mainly concentrated in Mayurbanjh, a

[18] The term Munda is used to designate the Munda language, but at the same time it refers to one specific tribe of the many Munda speaking tribes. In order to avoid confusion Parkin uses the term Mundari for this specific tribe as well as for their language. This study will use the term Munda to describe the Mundari speaking Munda in the Juang area.

neighbouring district of Keonjhar, where they make up about 50% of the population. They have also settled in the districts of Keonjhar and Baleshwar. The Santal have their own Munda dialect known as Santali. However, most Santal in Orissa speak and understand Oriya. The Santal are known for their "strong tribal identity marked by hostility to Hindus, advancement of the Santali language and traditional culture (...)" (Parkin 1992:21). They primarily focus on agriculture.

1.3.4.3 The Gouda

Apart from the Hill Bhuiya, Oriya people have settled in the hilly areas of Upper Keonjhar. According to McDougal, the settlement of Oriya people in the hill region is a relatively recent development, as the hills offer few attractions to settled agriculturists from the plains. He refers to the immigration of the 'Gouro'[19] as having taken place "within the last 75 years" (i.e. around the turn of the 20th century):

> "Most of the Oriya settlers belong to the Gouro (herdsmen) caste. Since their status in caste hierarchy is high, they regard the Juang as Untouchables. At least one Gouro family, occasionally two or three, reside within the territory of every Juang village. They utilize the fallow land of the village and the adjacent forest for grazing herds of cattle and water buffalo. They invariably live in separate hamlets at some distance from the village. Although they cultivate a small amount of land in the vicinity of their settlements, they are primarily dependent agriculturally on lands which they own in the plains. They normally do not sell or barter their dairy products to the Juang, but dispose of them at the market" (McDougal 1963:12-13).

However, as early as in 1872, Dalton, in his description of the Juang area, mentions the 'Goalas' as occupying a major part of the area inhabited by the Juang. By the 'Goalas' or 'Gopas' he refers to the same caste also known as Gouda, Gauda or Gouro. According to McDougal the Gouda recognize the Juang as being the rightful owners of the land, and pay them regular tributes. They provide milk and ghee for use as offerings in Juang rituals, and once a year they give the Juang a buffalo, or goats as a suitable substitute, for ritual sacrifice. The Juang ownership of land, used and inhabited by Gouda people, also finds its expression in the performance of a ceremony at each Gouda marriage. However, McDougal describes the relationship between the two groups as "often strained", since the Gouda herds frequently destroy Juang crops (McDougal 1963:13).

The Orissa District Gazetteer Kendujhar (1986:69) describes the general caste of the 'Gauda' as "(...) generally well-to-do. Besides extensive lands, they also possess large herds of cattle." Thus it is a combination of agriculture, with cattle keeping for the purpose of producing milk and milk products, which characterizes the occupational pattern of Gouda.

Patnaik and Bose (1976:61) refer to the same caste as 'Gouda' and translate this as 'milkmen' or 'cattle keepers'. They add an interesting economic attribute to the Juang-Gouda relationship by indicating that the picture of the Gouda as well-off milkmen and farmers does not entirely fit with the complex reality of the Gouda living among the Juang:

> "These cattle keepers migrated to the Juangpirh long ago to tend cattle of the Juang. Later, they developed interest in agriculture. To begin with they tried cultivation of niger [an oilseed variety; N.O.], mustard and paddy in a limited area by acquiring the lands of the Juang. As they found agriculture more profitable than animal husbandry, they expanded the area of cultivation by further encroaching upon tribals land and reclaiming fallow land in the available vicinity of their settlements and in valley-bottom. They raised dams across hill streams and utilized water from such sources for irrigating their lands. With the application of fertilizer and manure they increased the yield from land substantially. In the result, the cattle keepers became rich farmers and the Juangs their cattle keepers and agricultural labourers."

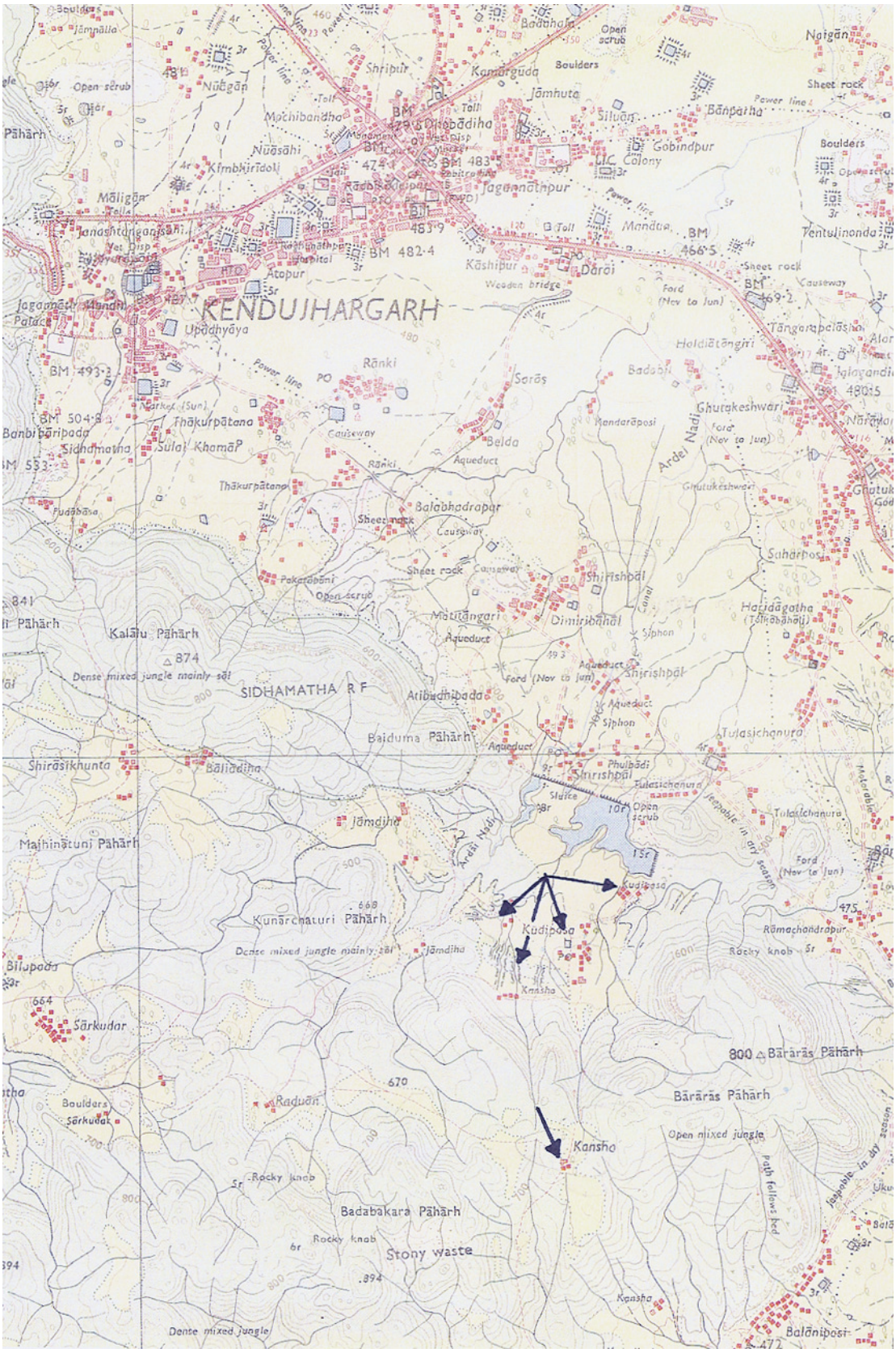
[19] The Gouda also figure as Gouro, Gauda, Goala or Gopa. This study will use the term Gouda except in quotations.

This indicates that in addtion to well-to-do Gouda using the territory of the Juang to graze their own cattle and to cultivate, there was also immigration of Gouda families to herd the cattle of the Juang. This was most likely an option for poorer Gouda. Initially they were without land for own cultivation in Juang territories, but successfully improved their economic situation by reclaiming and cultivating land.

The mother tongue of the Gouda is Oriya, which belongs to the Eastern Indo-Aryan Languages. However, Oriya is considerably influenced by both the Austric and Dravidian languages.[20]

[20] Modern Oriya vocabulary is 70% Sanskrit, 2% Hindustani/Persian/Arabic with the remaining 28% of mainly Australoid ('Adivasi') origin (http://www.geocities.com/Athens/Ithaca/1335/Lang/prakrit.html)

2 TWO VILLAGES



Map 9: Research area with Kodipasa (4 hamlets, incl. Lower Kansha) and Upper Kansa (Kansha)

The research area is located about 12 kilometres in a south-easterly direction from the district capital, Keonjhargarh. It is part of the border zone connecting the plain of Lower Keonjhar to the hilly area of Upper Keonjhar. The transition from the plain to the hills in this area is sharply marked by the rise of the outermost hill range belonging to Bhuiya-Juang Pirh, the homeland of the Juang and Bhuiya, which covers a total area of 1260 sq. km. The research area varies in altitude from between 500 metres to 800 metres above sea level. However, the hills in the interior rise up to 1100 metres above sea level. The plain, which lies to the east of the hilly area, rises slightly towards the foot of the hill range. The landscape in the plain is dominated by slightly terraced paddy fields, numerous village settlements, a rather dense network of roads, a railway line under construction and by a few canal systems fed by small dams to irrigate part of the paddy fields.

The villages on the outskirts of Keonjhargarh and on the road leading to the town, are much more 'urban' in appearance, with the presence of small-scale businesses, workshops and small hotels which cater for the numerous lorry drivers who use this route.

Towards the foot of the hill range, the landscape is enriched by an increased display of trees, which are either dispersed in the paddy fields or clustered in small patches of forest. The trees in the paddy fields are mostly of the mango species: (*Mangifera indica*), *mahul* (*Madhuca indica*) and jackfruit (*Artocarpus heterophyllus*), whereas the rather open forest patches consist mainly of Sal (*Shorea robusta*).

Kodipasa is situated at the edge of the plain which ends at the foot of *Barrasi;* a hill forming part of the range which separates Lower Keonjhar from Upper Keonjhar. To reach the village one has to pass a small dam, which provides the area below it with some irrigation facilities. However, the villagers of Kodipasa do not profit in any way from the dam as their agricultural fields are located behind it. The reservoir is partly supplied with water from the *Ardai* river, as well as with water from several small rivulets from the hills, which dry up during the hot season.

The hill range is covered with more or less dense forest, with Sal being the dominant species on the lower part. Forest vegetation turns into a more mixed forest towards the upper part of the hills. However, parts of the hill slopes are covered with bushy growth only. In a few places, the hill forest stretches out onto the plain. Most of the flat area below the hill range is used for paddy cultivation.

To reach *Upper Kansa* (Bindridi Kansa), the other village, one has to climb up the hill range, through the forest by means of a footpath, which follows a small brook. This brook dries out during the summer months. The top of the hill is characterised by several flat areas interconnected by small slopes and hillocks. The landscape here is a patchwork of rocky outcrops, forest, cultivated fields, open pastures, bush fallow and once cultivated swidden areas recovered with tree growth. Where the view is uninterrupted for some distance, this patchwork of cultivated and uncultivated nature is repeated on the surrounding hilly area of the Bhuiya-Juang Pirh.

Before going into more detail about the management of natural resources within the research area, a brief introduction is given regarding the two villages, which focuses on their social composition and general aspects of the coexistence of its various social groups.

Table 3: Population of both villages (census data 1998/99)

Ethnic group	Number of households	Total population per group	% of total population	Male adults	Female adults	Boys	Girls
Juang	86	436	61.23	124	148	76	88
Munda	28	146	20.51	39	47	37	23
Gouda	16	92	12.92	25	26	24	17
Santal	6	38	5.34	11	11	6	10
Total	**136**	**712**	**100.00**	**199**	**232**	**143**	**138**

2.1 Kodipasa

2.1.1 Population

Kodipasa is a mixed village inhabited by people belonging to three different tribes and one caste; the Juang, Munda and Santal form the tribal population while the Gouda are classified as a caste. According to the household census of 1998/99, the Juang, with 66 households, constitute the majority of the local population, amounting to 54.5% (331 inhabitants). The 28 Munda households make up 24% (146 inhabitants) of the local population, while the 16 Gouda households form 15.2% (92 inhabitants). The Santal with only 6 households are the smallest group and make up 6.3% (38 inhabitants) of the local population. This heterogeneous social composition is a rather recent phenomenon; bearing in mind that immigration into this previously homogeneous Juang village dates back to the 1930s when two Gouda families settled in Kodipasa. The Juang population today is rather small, although they are still in the majority.

The average household size is 5.23 persons.

Table 4: Population of Kodipasa (census data 1998/99)

Ethnic group	Number of households	Total population per group	% of total population	Male adults	Female adults	Boys	Girls
Juang	66	331	54.5	98	112	54	67
Munda	28	146	24	39	47	37	23
Gouda	16	92	15.2	25	26	24	17
Santal	6	38	6.3	11	11	6	10
Total	**116**	**607**	**100.00**	**173**	**196**	**121**	**117**

2.1.1.1 Clans and kinship groups

Descent rules of all ethnic groups are patrilineal and patriclans are exogamous. In all four groups most households are interlinked by affinal and/or consanguineal ties with some other households in the village. If, and by how far, clan and kinship ties do play a role in the social, political and economic contexts of households and the various groups remains to be analysed in later chapters.

The Juang population consists of several exogamous clans. The majority of the 66 Juang households of Kodipasa, i.e. 40 households (60%), belong to the founder clan; the *barcha bok*. This means that either the family head himself is a member of this clan, or the household includes children belonging to the *barcha bok*. Thus thirteen households, headed by widows belonging to other clans are included here, where the women in question had been married to

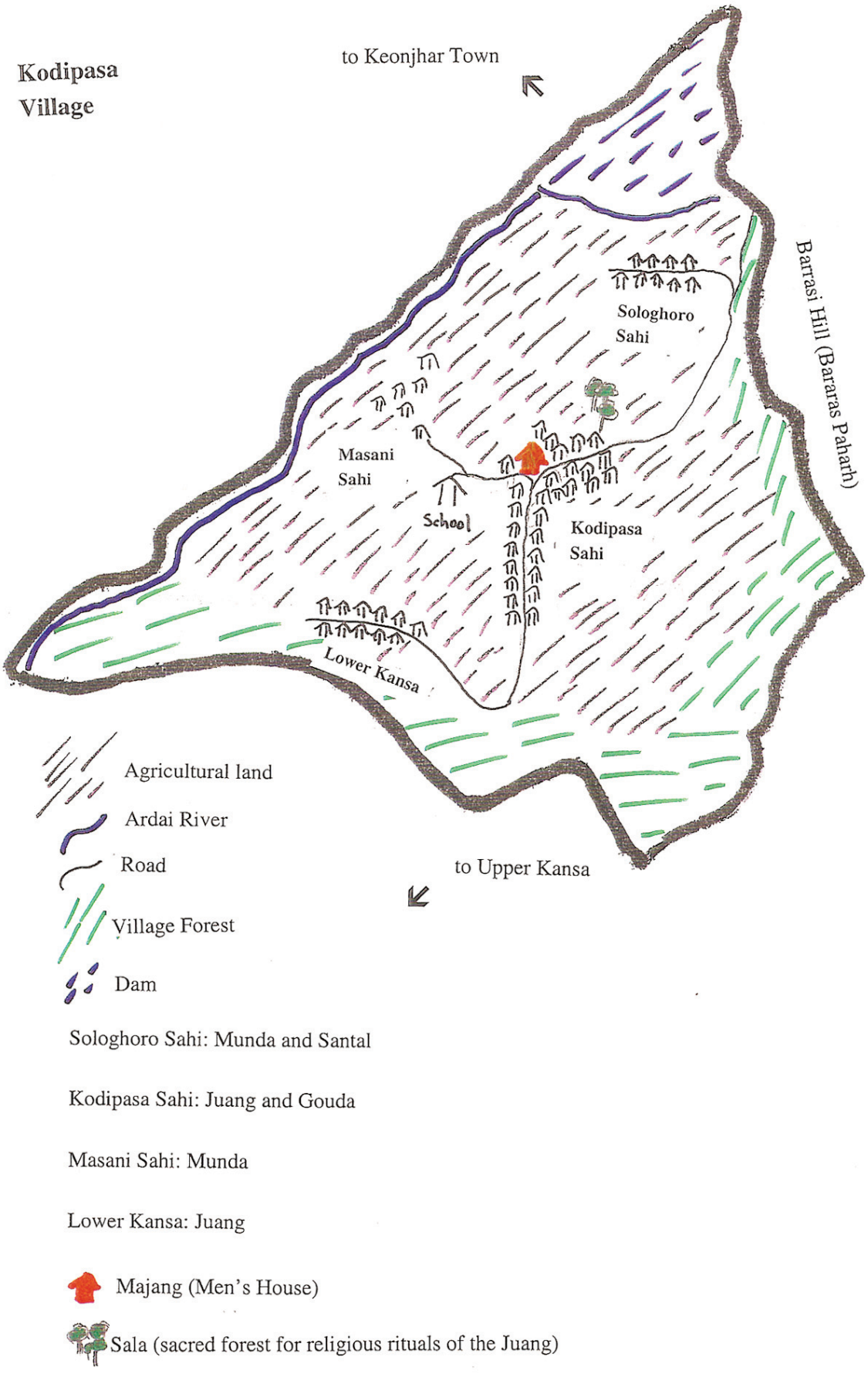
members of the *barcha bok*. The membership of the majority of the Juang to the same clan, indicates close kinship relations and long-standing family history within the village. The claim of this clan to ritual and political leadership is based upon the criteria of being the founders of the village in the distant past. On average, the economic status of Juang families who belong to the founder clan, in respect to access to land, is higher than that of the other Juang clans in the village (see chapter 4.4.1.1). 26 Juang households belong to seven other clans, who originated from villages other than Kodipasa. Half of these are Juang families who belong to the *kansa bok*; the founder clan of Upper Kansa. The remaining thirteen Juang households belong to six other clans. There are various reasons why clans, other than the founders are present in Juang villages; for example, a son-in-law may be requested by his parents-in-law to settle in the village of his wife, particularly if they have no sons, i.e. male heirs. Land scarcity is mentioned as another reason for men to leave their village. Divorce or widowhood combined with the return of women to their native village with their children, may result in an additional clan here, if the sons of a divorced or widowed mother remain in the mothers village and subsequently marry there. Resettlement is another mechanism resulting in a mix of clans in Juang villages. Thus the families of the *kansa bok* had been relocated from Upper Kansa to Kodipasa, from the forest to the plain where they now reside in a hamlet of Kodipasa called Lower Kansa (*Koratadihi Kansa*).

45 households from the 66 Juang households have affinal and/or consanguineal kinship ties to members of other households in the village. Of these, the largest Juang kinship group consists of six related households. Two other groups each consist of five related households. Three groups include three households each, two groups consist of four related households each and six groups consist of two households related by kin. The remaining 21 households do not have recognized kinship relations in the village. From these, three households have kinship relations with Upper Kansa. However, the Juang do not remember genealogies far back, and it may well be that some of these households do have kinship relations going back several generations.

The 28 Munda households belong to seven exogamous clans. There are five kinship groups related to each other by affinal and/or consanguineal ties. The largest of these groups consists of eleven households (*Gagrai* clan), followed by a group of five households (*Chatar* clan), a group of four households (*Champia* clan) and two groups of two related households (*Lugun* and *Soren* clan). Of the remaining four households, two belong to the *Hesa clan* and have very distant kinship relations, and two have no kinship relations at all in the village (one belonging to the *Chatar* and the other to the *Sidhu* clan).

The six Santal households all belong to the *Hembram* or *Hansada* clans. All are linked by affinal and/or consanguineal kinship ties to each other.

The sixteen Gouda households consist of two groups, all of which have affinal and/or consanguineal links. Of these, the largest kinship group is composed of eleven households, while the other is made up of five households. These two groups differ from each other with regard to alcohol consumption. The larger group abstains from alcohol consumption, as it is considered impure by these Gouda, whereas the smaller group, known as the Maghada Gouda, drink *mahul* as well as *handia,* and thus is considered to be of a lower status by the abstinent Gouda group. Some of the Maghada Gouda herd the cattle of the Juang. In the past, the larger Gouda group also carried out this role, but as their economic situation improved, the roles became reversed and now some Juang herd the cattle of these Gouda.



Map 10: Kodipasa with 4 *sahi*

2.1.1.2 Settlement pattern

The settlement pattern reflects the village history, which is one of transition from a homogeneous Juang village to a village also containing the Gouda, Munda and Santal. With the exception of a few Gouda families, the newcomers settled in three separate hamlets (*sahi*) at some distance from the core village Kodipasa *sahi* which is easily identified as a Juang village by the presence of a *majang*; the men's house. This is a building with an open side-wall In a small cluster, adjacent to the *majang,* are some houses of the local descent group. They shelter families belonging to the *barcha bok*, who claim their ancestors to be the founders of this Juang village. Nearby this area is a grove of large old mango trees belonging to members of the *barcha bok*. Also nearby, a short distance from the village street and the houses, is a small sacred grove, the *sala*, which is another place of religious significance for the Juang. Other Juang houses are situated along the street leading away from this core area, towards the upper end of the hamlet. This is the residential area of the milkmen; the Gouda. They were the first immigrants, several decades ago, at which time they were employed mainly as cattle herders for the Juang.The Munda and Santal families of Kodipasa reside in two other hamlets. The first, *Sologhoro Sahi* consists of fifteen Munda and six Santal households, which are grouped together, along a short street, which branches off from the main street at the beginning of the village. The second, *Masani Sahi* is a hamlet of twelve Munda compounds, situated in the midst of paddy fields, a little apart from the main street. Neither of these two hamlets have a public place comparable to the men's house of the Juang. But in Sologhoro Sahi there is a sacred forest; a small patch of Sal trees (*Shorea robusta*) encircled by erected stones. It belongs to the Santal. The Munda perform part of their rituals in another forest patch adjoining the *sala* of the Santal.

The fourth hamlet consists exclusively of fourteen Juang households, situated at the upper end of the village. Lower Kansa (Koratadihi Kansa) is an offshoot of Upper Kansa (Bindiridi Kansa); a Juang village in the forest, on the top of the hill range. In the 1970s this village was relocated by the government, down to the plain, in order to stop shifting cultivation in the forest. However, the resettlement project partially failed and after a number of years, several of the families returned to the forest. Lower Kansa has its own *majang*. However, the annual rituals, which are mainly connected to the agricultural cycle of the Juang, take place in Kodipasa Sahi. Therefore, the *majang* in Lower Kansa lacks one of its central ritual functions to make this hamlet an independent and autonomous Juang village. The *karat* tree, as well as erected stones to indicate the presence of the village goddess, in front of the *majang* are absent. There is no sacred grove to perform annual rituals in this hamlet.

The social heterogeneity of Kodipasa village is also reflected in the various architectural patterns of the houses, which not only indicate differences between the various social groups, but also between the Juang themselves. Traditional Juang houses are tiny buildings, with mainly one room, no windows, a small veranda and a roof made of jungle grass and paddy straw. Some of the Juang houses are somewhat larger and clearly resemble the houses of many Oriya villages in the area. Roofs may have a covering of jungle grass, paddy straw, locally produced earthen tiles or even tiles made from cement purchased and carried from outside the village. There are also houses provided by the Government, as part of a housing scheme for poor people. Up until now, Juang families were the only beneficiaries of this programme, and as such, these houses are only to be seen in the two hamlets inhabited by Juang. They are constructed from cement, with walls covered with white lime plaster, instead of mud, which gives the latter, more traditional houses, their reddish brown colour. These 'modern' houses are supplied with windows to ventilate the rooms and to provide daylight to the interior; an element not to be found in traditional Juang architecture. However, the windows are not used by the inhabitants, as a rule they remain closed. The fact that the Juang have been

partially provided with additional housing has contributed to the loss of one of the functions of the Juang men's house; traditionally it was also used as a dormitory for boys and young unmarried men.

Whereas the majority of Juang compounds are of an open structure, giving free access to the houses and forecourts, by contrast, the compounds of the Gouda and Santal are surrounded by fences providing them with more privacy. They are generally larger, and only accessible by passing through a narrow corridor between two buildings. The houses of the Munda share similarities with Juang houses.

2.1.1.3 Living together separately

The co-existence of the various social groups in Kodipasa is characterised by differences and similarities in various respects. They are separated by rules of endogamy and caste, and they have different languages and religious traditions. However, they inhabit a common territory, share the same environment and are all part of a village community, involving them in a certain degree of social, economic and political cooperation.

Rules of endogamy within a group are part of the caste rules, which govern social life in Indian society in general, and these rules apply to tribal societies as well. The Juang, Santal, Munda and Gouda are strictly endogamous groups. In our survey of 1998/99 we came across only one case of intermarriage, which crossed ethnic/caste boundaries; a Munda man who had married a Santal woman. Intermarriage between the Santal and Munda, although uncommon, is permitted. However, any such union requires specific rituals to be carried out.

Rules relating to food are another way of regulating the social relationship between members of different castes and tribes. The Gouda of Kodipasa do not accept boiled rice or other cooked food from any of the other groups, while their food, conversely, is accepted by the members of all the other groups. The Gouda, unlike the Juang, Munda and Santals, do not consume pork, which they consider to be impure; nor do they keep pigs. The Gouda belong to the official category of General Caste, indicating a higher social and economic status than groups belonging to the Scheduled Castes, Scheduled Tribes or Other 'Backward' Classes. They are mainly farmers and cattle herders. They worship Lord Krishna, and their attachment to cows is not just an economic one, but is interlinked with their religious attitude toward them. They consider it their appropriate work to cultivate land and to sell milk. The majority of the Gouda abstain from the consumption of alcoholic beverages, be it *handia* (rice beer) or *mahul* (liquor produced from the flowers of *Madhuca indica*), both of which are highly appreciated by the Juang, Munda and Santal. The Gouda consider the Juang to be unclean, because they eat pork, drink alcohol and sacrifice animals to gods and goddesses. However, the Gouda provide milk and *ghee* for various rituals performed by the Juang, thus contributing to the ceremonial management of the general well-being of the village, although in a more passive manner. In this way they recognise the Juang as being the original inhabitants of the village and its territory. If the rules which apply to the giving and receiving of food are used as indicators of social status, the social status of the Maghada Gouda, (although they do drink *mahul* and *handia* like all three tribes), is nevertheless higher than the status of the tribes,. The relationship between the Maghada Gouda and the other Gouda is a somewhat ambivalent one – members of the other Gouda may accept food from the Maghada Gouda, but intermarriage does not take place.

The Munda and Santal do not accept boiled rice from the Juang, whereas the Juang will accept cooked food from Gouda, Munda and Santal. Thus, if the rules which relate to the giving and receiving of food are applied, the social status of the Juang may be considered the lowest of all the groups in the village,. The Munda and Santal accept food from each other and they have common religious rituals performed by a Santal priest. They have a similar so-

cial status; an indication of this is the possibility of intermarriage between the two groups, although special rituals have to be performed in such a case.

Oriya is the mother tongue of the Gouda. The Juang, Munda and the Santal all have their own languages, but also speak Oriya fluently. As a rule, communication among members of one group takes place in their mother tongue. Communication between members of different groups is in Oriya. However, Oriya is sometimes used even among speakers of another common mother tongue. I witnessed meetings of Juang people where they conversed in Oriya, although there were no outsiders present. To a varying degree, the members of one group may speak, or at least understand, the language of other groups. This depends upon the age and family history, which is connected to the time spent in the village. Members of the Gouda families who have lived in Kodipasa for several decades even speak Juang, although this does not apply to Gouda women who came to Kodipasa through marriage and who originate from areas where there are no Juang residents.

Spatial segregation among the different groups is highlighted by the various *sahis* (hamlets) or clusters of neighbouring houses and compounds belonging to the same group. The general perception from each of the different groups is that they do not "mix" with people from other groups because they belong to different *jatis (*castes*)*. However, they all interact on a daily basis and are all known to each other. There are friendly relationships among people from various groups and in such cases, they even invite each other to marriage ceremonies. On such occasions gifts and financial contributions may be given. The consumption of *handia* and *mahul* provides the opportunity for them to sit together for hours to discuss and sometimes quarrel with each other, especially if they have over indulged.

There are, however, indications for closer every-day interaction with people from their own groups than with villagers from other groups. People go to the market in the district's capital in groups and often these groups are composed of members of the same sex and of the same group. The same is also valid for groups going to the forest to collect timber and firewood and for people going for wage labour outside the village, be it farm wage labour or other wage labour. But there are several economic relations within the village which crosscut the various groups, as will be shown below.

2.1.2 Economy

With the exception of a few households, the majority of families living in Kodipasa cultivate rice on permanent paddy fields. However, only a small minority manage to produce enough rice in a year for their own needs, and almost every household has to buy additional rice at the market. Additional income is provided by wage labour, wood selling, selling of other agricultural products (milk, vegetables, oil seed, small animals such as pigs, goats, fowls) and small scale business. As will be shown later, in more detail, certain economic activities are linked with traditional occupations connected with caste.

A variety of other factors combine to design the pattern of economic activities of the various groups, as well as to result in the differences between households within the same social group. However, generally, it may be said that there is a low level of economic integration between the various groups, with households being the main focus of economic activities, and the main units of production and consumption. Wage labour for other households in the village is irregular and mainly undertaken during farming periods. Some Juang are employed by the Gouda on a more regular basis. The only regular form of economic cooperation between the different social groups is with respect to cattle herding: two of the *Maghadu Gouda* families herd the cattle for most of the Kodipasa villagers, for which they receive payment in the form of rice and paddy.

Besides the exchange of labour between households, access to land for paddy cultivation brings households into economic relations of selling, mortgaging and renting. Land is a scarce resource in Kodipasa as will be demonstrated later.

Most of the activities from which income is derived are connected with the world outside the village; be it wage labour in local mines or road and house construction, farm wage labour for the more prosperous farmers in other villages, or selling firewood and timber in the vicinity or at the local market of Keonjhar Town.

2.1.3 Politics

The political status of the Juang somehow contrasts with the social status that they hold within the framework of the local caste-system. They are unanimously recognised as the original inhabitants of the village by the Munda, Gouda and Santal and this gives them a certain status of religious and political pre-eminence. The office of the village priest *(bwita)* and his assistants *(ordhano)* is always represented by Juang men who belong to the *barcha bok* clan, the local descent group. As an exception this position may also go to the widow of a deceased priest, as was actually the case during the time of field research. These village priests perform all the rituals necessary, not only to promote the general well-being of the villagers, but also for a favourable course of the agricultural cycle. This does not exclude the performance of additional and other *pujas* by members of the Gouda, Santal and Munda, but is seen as a prerequisite for the general well-being of all villagers.

The men's house, the *majang*, although a traditional institution of the Juang, is in fact open to all male villagers to a certain degree, and it is up to the members of the various social groups to join a meeting. It gives the opportunity for the male villagers to discuss village matters and, in a pre-structured way, to influence decisions to be taken on a village level, although. During our stay in the field it was observed, that besides the Juang men, it was predominantly the Gouda men who actively participated in meetings and discussions in the *majang*. This may have been due to not only their relatively long established presence among the Juang, but also their spatial proximity. The Santal and Munda who reside in separate hamlets are more recent newcomers in comparison to the Gouda.

The Juang men also hold the political offices in the context of the Panchayat system. The village belongs to the *Kodipasa Grama Panchayat*. This administrative and political unit comprises ten villages, with a total population of 3,329 according to the 1991 census. These ten villages are mainly inhabited by the Juang, but include a considerable number of other tribals and non-tribals. The *Panchayat* ward members (village delegates) of Kodipasa village are all Juang. The former political head *(Sarpanch*) of the *Kodipasa Grama Panchayat* was also a Juang from Kodipasa village. Several years ago he was replaced by a Juang *Sarpanch* from another village.

However, such religious and political priorities favouring the Juang do not automatically provide a basis for exercising power over members of other social groups. Although symbolically recognised as "king" (*raja*) of the land by the newcomers, the area of Kodipasa is no longer under the exclusive control of its original inhabitants: land is either privately owned, or belongs to the state. Political institutions such as the *Panchayat* are rather weak. Religious and political offices held by the Juang are not even a strong basis for exercising authority, let alone power, over members of the Juang community itself, as will be shown in chapter 5.5.

Within the broader context of state-level administration, the Juang, Munda and Santal are treated as Scheduled Tribes (ST), whereas the Gouda come under the category of General Caste people. The concept of "tribe" or "adivasi" (first inhabitants) has been adopted by the Juang, Munda and Santal, who in certain situations refer to themselves as *adivasi*, when making comparisons between themselves and non-tribals.

Kodipasa in the plain

Juang women carrying bundles of paddy through the village street of Kodipasa

Mahakud Gouda, grazing Kodipasa villagers' cattle

Mukta Behera (Gouda) of Kodipasa, with her sons Utkal and Rangit and their milk cow

2.2 Upper Kansa (Bindridi Kansa)

2.2.1 Population

Upper Kansa nestles against a hillock at the edge of a small plain on top of the hill range. During the rainy season, when maize and rice are growing in the fields adjacent to the village, it is hardly visible. The tiny houses, covered by jungle grass are grouped around the *majang*, which is situated in the centre of the settlement of twenty Juang households. According to the 1998/99 census, the population of Upper Kansa was 105.

The village of Upper Kansa is inhabited exclusively by Juang families. With the exception of one, all of the households belong to the same clan, i.e. the *kansa bok;* the founder clan of the village. The fact that female members of the *kansa bok* carry the same name as female members of the *barcha bok* from Kodipasa – i.e. *sarrai* – indicates the common origin of the clan of the two villages, and also explains why marriages between these two clans are forbidden. The only household that belongs to a different clan (*gungi*) originates from the fact that a Juang woman, who had married into another Juang village, returned to Upper Kansa after the death of her husband and brought her son with her. He stayed in the village.

The biggest kinship group consists of four households linked by affinal and/or cansanguineal ties. One kinship group is composed of three households and four kinship groups consist of two related households each. Six households with relatives in Upper Kansa have some additional kinship ties to households in Lower Kansa.

Five households do not have any affinal and/or consanguineal kinship ties in Upper Kansa. Out of these five households, only one has relatives in a household in Lower Kansa.

As an outsider, this village gave me the impression of greater homogeneity than the village on the plain. The houses are all built in the traditional manner: small huts constructed with poles and sticks and plastered with mud, the thatches covered in jungle grass, with a slightly elevated veranda along the front wall. There are no houses provided by the government, no tiled roofs and no obvious differences between the buildings with regard to size and architectural style.

Table 5: Population of Upper Kansa (census data 1998/99)

	Number of households	Total population	Average household size	Male adults	Female adults	Boys	Girls
Juang	20	105	5.25	26	36	22	21

2.2.2 Economy

In contrast to Kodipasa, the Juang of Upper Kansa still practise shifting cultivation. This technique requires the cooperation of households for the clearing of new swiddens. Weeding is partly done in a rotation system by the women, who work in a group on the fields in turn. Rice produced in Upper Kansa is not sufficient to feed the population, and thus wood selling and wage labour add to the income of the households. However, there is no scarcity of land so it would be possible for the villagers to cultivate more land than they actually do. Therefore, the reason for their high dependence on wood selling must be linked to other factors.

Unlike in Kodipasa, here the cattle of the Juang are grazed in a system of rotation, by the men and boys of the village. Goats and fowls are kept for the purpose of rituals, or may be sold at times of financial need. During my stay the villagers decided to dispense with their pigs, as they caused too much damage in the fields behind the houses as well as in the nearby

swidden plots. To avoid conflict among the villagers, the decision was taken to ban pigs completely from village life.

2.2.3 Politics

With regard to its own affairs, Upper Kansa is a politically and ritually autonomous community. Under the old remains of a rotten *Karat* tree is the seat of the village goddess represented by a group of erected stones. The *majang's* forefront here is fully open and visually it leads to the fireplace in the centre of the men's house. Coming to the village as a foreigner, during my first visits I was always welcomed by the male villagers in the *majang*, where I was offered a seat on a mat. Women and small children looked at me from the distance of their houses. Even later on, when I became a regular visitor to the village, the women never joined me at the *majang,* which is clearly a male space where women have access only under certain circumstances. In sharp contrast to the *majang* in Kodipasa, the men's house in Upper Kansa gave the impression of a lively place, visited by the male villagers several times a day. The fire in its centre rarely went out, and was used to light the locally prepared cigarettes, which the men smoked during their discussions and talks.

Historically Upper Kansa is an offshoot of a village community named Kansa, which in the past was situated nearby Tangarpada (approx. 8 km by air from Upper Kansa). This whole village community then relocated to a new place nearby Sanpokhari, the area where Upper Kansa (Bindridi Kansa) is now situated. From there, a number of the villagers separated and moved to a new area, which became known as Jirpani Kansa. From Jirpani Kansa, part of the villagers left again, and their new settlement became known as Handiduha Kansa, also named Chaulduha Kansa.

At the end of the 1970s, the whole village community of Upper Kansa (Bindridi Kansa) was resettled by the government in the plain of Kodipasa, and this new hamlet of Kodipasa became known as Koratadihi-Kansa (Lower Kansa). Several of the families, however, later returned to the forest, and reconstructed Upper Kansa (Bindridi Kansa).

Apart from being aware of their relocation from Upper Kansa (Bindridi Kansa) to Lower Kansa (Koratadihi Kansa), the villagers did not know, when and why these various movements took place. They happened "in the past", "in our father's time", "long ago". These were typical comments made by the villagers. However, processes of fission and relocation of Juang villages are well described by McDougal (1963:76-80). The fact, that Upper Kansa village has its own separate rituals and village headmen, indicates an advanced degree of a fission process. For administrative purposes however, these various Kansa villages, with the exception of Lower Kansa (Koratadihi Kansa), are considered to be one – thus official data on Kansa does not specify the various Kansa villages.

Upper Kansa belongs to the same *Grama Panchayat* as Kodipasa (i.e. Kodipasa Grama Panchayat), but no one from the village is invested with a Grama Panchayat office (*Sarpanch* or ward member). Upper Kansa belongs to the same Development Block as Kodipasa, to Banspal Block.

Upper Kansa in the hills

Juang woman in Upper Kansa

3 VILLAGE ECONOMY

"Best work is work on our own land. If we work in our own fields we will have paddy for a longer period. If we do wage labour, this will only last one or two days. I prefer wage labour to wood selling. But wage labour is not always available".
Parvati (Juang widow)

"The best work is our own farm work. But to work on others people's fields is better than selling wood. Sometimes foresters catch us."
Sita (Juang woman)

"Wood selling or wage labour is the same. Now we are selling this wood for 50 Rupees [the income for two days work, N.O.]. For wage labour we get 20 Rupees plus meal per day."[21]
Basanti (Juang widow)

"Farming our own land is best. You will have some paddy in your house, so you will not have to go to the fields of others. Wage labour is better than wood selling. If you sell wood, you never know, how much you will get. For wage labour you know the salary, it is fixed. If you sell wood, you have to bargain."
Mahakud (Gouda man)

"We only sell wood in times of need, when there is no money in the house. Selling wood is hard labour and you do not know how much you get. I prefer wage labour."
Sanatan (Munda man)

"The best work is work on our own fields. I prefer wage labour to wood selling. Wood selling is hard work. But if no wage labour is available, I sell wood. The income is the same, for timber I may get 70 Rupees for two days work, for wage labour 35 Rs. per day."

"I do not like to do farm work for other people. You are told 'do this', 'do that', 'be faster'. After you have taken food they immediately send you to work again. That's why I prefer to sell wood."
Bharata (Juang man)

"When work on our own land is over, we do not sit in the house and look at our own paddy. We do some work and buy rice, so that our own paddy will last for a long time."
Bhagirati (Munda man)

For the purpose of economic analysis, I consider both the tribal and non-tribal villagers of the two villages, to be primarily peasants, who have strategies with which to cope with various environmental and economic conditions, and who combine the use of various natural resources and other economic opportunities in interlinked and interdependent ways. To conceptualise the villagers as peasants, allows us to incorporate both the shifting cultivators of Upper Kansa, as well as the cultivators of permanent paddy fields in Kodipasa. It also allows us to include the minority of households belonging to the Gouda caste. Peasants belonging to various social groups, from two different, although neighbouring landscapes (hilly forest area and plain area), and with diverse cultivation techniques (shifting and wet rice cultivation) can thus be compared.

The economic importance of wood selling in the two villages has to be assessed in the context of other economic opportunities, which are basically agriculture and wage labour (farm and off-farm wage labour). The main aim of this chapter is to provide a general analysis of these three economic activities, in order to gain an understanding of how and why peasants

[21] In 1998/99, 40 Rupees were equivalent to 1 US$. The price of 1 kg rice was 10 Rupees. (100 Rupees = 2.7 CHF)

make use of them. One crucial question in this context is: Which is the most economically viable activity?

Economic efficiency, measured by comparing the input and output of labour, however, is only one criterion with which the various economic options can be evaluated. Other factors such as land productivity, quality of and access to natural resources (land and forest), aspects of slack season and risk in agriculture, as well as seasonal fluctuations in the supply and demand for wage labour, fuel wood and timber must also be considered. Finally, knowing the best economic options and having clear preferences with regard to various criteria still does not indicate anything about their availability for individual households.

Besides providing a general analysis of the various economic activities, chapter 3 illustrates the general economic situation in the two villages under study, with regards to agriculture, farm and off-farm wage labour, as well as wood selling activities. In chapter 4 the economic differences between the households and ethnic groups in both villages are presented. It adds further economic and non-economic factors which help to understand and explain the mix of local peasants' strategies.

3.1 Agriculture and cultivation methods

The aim of this chapter is to consider various elements of local agriculture, in order to evaluate its economic meaning for the villages and households under study. The agricultural factors dealt with in the following sections are: various cultivation techniques, forms of labour division and cooperation, harvest rates and productivity of land and labour. In chapter 3.1.5, a comparison between the various cultivation techniques, with regard to harvest rates, and productivity of land and labour, indicates which type of land and cultivation technique are the most productive. The question of why other, and less productive methods of cultivation are still important, has to be discussed on top of factors other than optimal productivity of land and labour. Two of these are the availability of and access to land.

General land availability and the degree of local self-sufficiency with regard to rice, the staple food crop in the area, will be estimated for the two villages in chapter 3.2. Patterns of ownership and land distribution among households in the two villages will also be analysed. This analysis will indicate the range of economic differences, with regard to agriculture, between households.

All these data will allow us to ask, whether, under the given conditions, it would be possible for the smallholders in the two villages to grow more paddy in their area, and if so, why they choose instead, to sell wood and/or opt for wage labour. It will be shown, that despite the fact that local institutions redistribute land among the households, land deficiency remains a problem, in Kodipasa, under conditions of current cultivation techniques. In fact several of the villagers have to supplement their income from agricultural activities, by other means, such as wood selling. In Upper Kansa, it would be possible to cultivate larger areas, but low labour productivity and low land productivity together with factors such as natural risks make wood selling a reasonable alternative.

State control over land resources, in the form of land settlement, distribution of land in the context of development, and the legal determination of land use, also have to be studied in order to understand the contemporary agricultural situation. It becomes clear that this situation is the result of a combination of endogenous and exogenous economical and political factors.

Table 6: Local patterns of cultivation and ownership

Type of field	Technique of cultivation	Crops	Traditional land tenure system	Modern land tenure system
Toila	Shifting cultivation with 2 years cultivation, mixed cropping and crop rotation, fallow periods of 8-10 years, use of plough and hoe, no additional fertilizer to ash	1st year: oil seeds (sesamum), beans and other pulses 2nd year: paddy, pulses, millet	Private property of field produce – common property of land: new distribution, redistribution	Government land, but traditional land tenure still operates
Guda	Short fallow periods of 2-5 years, no additional manure during cultivation, use of plough, crop rotation and mixed cropping	Similar to *toila* fields	Private property of field produce – common property of land: new distribution, redistribution	Private land
Badi	Permanent cultivation, use of dung and other manure, use of plough, crop rotation und mixed cropping	Paddy, pulses, maize, millet, mustard	Private	Private land
Bila	Permanent paddy fields, application of dung, slight terracing, bounds to retain water, use of plough	Paddy	Private	Private land
Garden	Permanent application of manure, mixed cropping	Vegetables, spices, tubers	Private	Private land

The Juang cultivate different types of fields (*toila, guda, bila* and *badi*), using different cultivation techniques. Crops, sexual division of labour, forms of labour cooperation, and ownership patterns of land also vary to a certain degree with the type of land cultivated. It is appropriate to consider agriculture in the research area under the aspect of the coexistence of several cultivation systems, although one or the other system may be predominant. The coexistence of cultivation systems is partly to do with environmental facts and partly with the transformations taking place in agricultural production due to various other factors.

If a comparison is made between the agricultural systems of the two villages with data from other Juang villages, together with general data on the agricultural production of the Juang, there are no significant differences. However, the combination of the cultivation systems varies in different villages and areas, depending on topography, demographic situation, natural environment and irrigation facilities. Mainly referring to my own research area, I will include data from other areas, in order to complement or contrast with my own findings.

The farming techniques used by the other three groups (Munda, Santal, Gouda) are similar, except that none of these practises, or has ever practised shifting cultivation.

3.1.1 *Toila* land: Shifting cultivation

> "The biotic factors especially human interference, direct or indirect, have considerable modified the pristine vegetation and are solely responsible for the present degraded condition of the forests. The Bhuyans and the Juangs are a people of very primitive instincts. Their chief instinct is hunting and a craving for unfettered freedom. They consider themselves to be the lords of the soil and live in a simple arcadian fashion. Shifting cultivation is an immemorial and traditional custom with these aboriginal tribes which had been followed by them uninterruptedly. The areas of shifting cultivation may rightly be termed as 'Jhumers's Paradise'. The jhuming represents truly the aboriginal method of shifting cultivation followed by the Bhuyans and the Juangs" (ODG 1986:20).

> "Agriculture is the main occupation of the Adivasis of the district, but due to extreme poverty they often take to *podu* cultivation which is extremely harmful. To stop this harmful practice the Adivasis are now given various agricultural aids and loans. Some minor irrigation projects and digging of tanks and wells have now been undertaken in the tribal areas" (ODG 1986:392).

Toila is the Juang term for shifting cultivation. In Oriya this cultivation technique is known as *podu* or *jhum*. Despite efforts from the forest department and other state agencies to stop this cultivation method, as it is considered to be the main cause of forest degradation in the Bhuiya-Juang Pirh, the clearing and burning of forest vegetation for the cultivation of a variety of crops, is still widely practised by the Juang. While judged as ecologically detrimental to the environment, shifting cultivation is also considered, by the local development agents, to be both economically inefficient and technologically behind the times.

Shifting cultivation was practised by both villages in the past, although, as far as the Juang of Kodipasa are concerned, it has been in decline since the 1970s. This, along with pressure from the forest department to stop this method of cultivation, has led to the expansion of paddy cultivation on permanent fields on the plain. However, the Juang of Upper Kansa still clear forest patches for cultivation, as do most of the Juang and Bhuiya in the villages and hilly areas of the interior, where due to topographic factors, they have little potential for growing crops on permanent fields.

Following the classification of Boserup (1998:15), the Juang of Upper Kansa practice a type of *bush-fallow cultivation*, which is of greater intensity than *forest-fallow cultivation*. The main difference between these two types of shifting cultivation is the length of the fallow period, which is much shorter in bush-fallow than in forest-fallow cultivation. According to Boserup, forest-fallow cultivation requires a fallow period of at least twenty to twenty-five years, whereas with bush-fallow cultivation, this period is much shorter, "usually somewhere between six and ten years" (ibid.) This is the case in Upper Kansa. Within this period, only bushy vegetation and small trees recover the swidden. This is described by Boserup as a vegetational stage which does not justify the term "true forest".

Taking into consideration data taken from various periods and Juang locations, there appears to have been a tendency by the Juang, to decrease the fallow periods. This has been documented by various authors. This tendency is partially attributed to population growth and restrictions by the forest department. McDougal (1963:29) estimates the average rotation cycle in the Juang area to be about ten years. However,

> " (...) in some cases it is as low as seven years, but where there is a large amount of arable land in relation to village population, the cycle may extend to 15 or 20 years" (ibid.).

According to McDougal, the length of the rotation cycle depends primarily on the ratio of arable land in the village territory to its population:

> "The greater the population in relation to available land, the shorter the rotation cycle which is observed. Moreover, the rotation cycle is not precise; the various sections of land are not invariably re-used by the village in exactly the same order each time the cycle is repeated, although there is a strong tendency to do so" (ibid.).

Bose (1967:96) too mentions a tendency of decreasing fallow periods for swidden plots in Juang area:

> "It is very difficult to tell correctly the cycle of regeneration of forest as the local tribals have no idea of counting years. However, the number of people who can give a comprehensive idea of the regneration cycle is greater here than in the Abujhmar. Again, in the Juang area this regeneration cycle varies to some extent from village to village. Previously, where there was not much pressure of population, the cycle was said to be 22 years but gradually with the increase of population and increased pressure on land, the cycle has now been reduced to 12 years."

With regard to the 1970s, Patnaik and Bose (1967:62) mention a fallow period lasting between nine and twelve years, after two years of cultivation. Approximately ten years later, Mohanty (1986:23) refers to a case study with a seven year fallow period in *Kadalibadi*. Referring to field research carried out in the 1990s, N. Patnaik mentions a fallow period of between five and seven years, based on observations in the Gonasika Panchayat region (unpublished research report: 68).

As has been already mentioned, the fallow period in the area of Upper Kansa is estimated to be between six and ten years. The vegetation after this period consists of bushes and small trees of up to three metres in height; creating rather open and bushy forest patches. However, in the case of Upper Kansa, land scarcity does not seem to be the main reason for these rather short fallow periods. As demographic growth in this village has been considerably reduced by the resettlement of part of the original village to the plain at the end of the 1970s, population growth cannot be responsible for the short fallow periods. The villagers of Upper Kansa explained that it would be possible for them to lengthen the fallow periods. They did not perceive that they suffered from any scarcity of forestland for shifting cultivation. Instead they pointed out that the process of clearing and de-bushing the area after shorter fallow periods was in fact easier. Therefore, the reason for short fallow periods in other Juang villages may well be due to less work invested in clearing and not necessarily scarcity of land. Thus the correlation between available forest area, population size and fallow period does not seem to be very clear. In order for this to be clarified, further and more detailed investigation would be necessary, taking into account additional factors such as intensity of labour, quality of soil, distance to the village, planted crops etc.

Juang terminology distinguishes swidden plots in various stages of cultivation by referring to cultivated crops and the activities involved in preparing swidden plots:

– 1st year swidden plots: *surilok* (*sulur* = *Phaseolus mungo*; O = *biri*; black gram, pulse variety): although the main crop of first year swidden plots is *niger*, an oilseed variety (*Guizotia abyssinica* /J = *ramtila*, *O=rasi;*), the Juang name these plots with reference to the cultivation of *sulur*: oilseed is sold or bartered, while *sulur* is cultivated for their own consumption.
– 2nd year swidden plots: *bualok* (*bua* = paddy, *lok* = place)
– 3rd year swidden plots: *nala* (*nala* = old in Juang terminology)

The Juang term *ekan* is a general term for swidden plots, regardless of the year of cultivation. The term *kaman* is used to refer to the felling of trees and bushes on hill slopes; in preparation for swidden plots.

Several authors refer to the cultivation of swidden plots, in the third year, in the Juang area. According to them, oilseed (*niger*) is cultivated during the third year. McDougal, for example, mentions that if a swidden plot is used for a third year, it is again sown with sesamum (*niger*), occasionally rice or more rarely, exclusively with millet (McDougal 1963:27). However, the Juang of Upper Kansa do not cultivate swidden plots in the third year, due to a copious growth of weeds. According to them, a swidden plot is getting *nala* (old) after the harvest of all of the crops from the second year cultivation.

3.1.1.1 Cultivation techniques, sexual division of labour and labour cooperation

In the research area, swidden plots are cultivated for two years, followed by a fallow period of approximately eight to ten years, some times even shorter. The clearing of tree cover is carried out on the lower and upper slopes within a wide range of slope degrees. The average slope degree in the area is about twenty degrees; hillslopes rarely exceed 45 degrees (McDougal 1963:22). But even rather steep slopes are not exempt from cultivation. Felling is carried

out starting at the lower part of the patch to be cleared, with the working party moving upwards towards the top of the hill. Swidden plots may also be made on the flatter areas (to be found on the top of some hills), as well as in the valleys and adjoining plains at the foot of hills.

The following description is based on the observation of shifting cultivation in Upper Kansa in 1999:

1st year swidden plots – *surilok:*
The clearing of a forest patch after fallow starts during the second half of March, and is done mainly by small working groups of four to five men, belonging to different households. These groups work in rotation on the swidden plots of their members. Smaller bushes are removed and the branches from the lower parts of the trees are cut with axes. Smaller size trees are felled at the height of about 20cm. Larger trees with a girth of about 30cm or more are left untouched. They will be killed by heaping dried twigs and branches at their foot which will then be set alight. These dead trees serve as poles for creepers planted during the first year of cultivation, and they are removed from the swidden plots, before the second year of cultivation. Only large trees survive the practice of burning and continue to grow during the first and second year of cultivation.

However, the forest patches cleared in Upper Kansa contain hardly any trees with a greater girth size than 50cm. Thus, large trees, on second year swidden plots are rare. Newly cleared forest patches are open mixed forests with bushy undergrowth, which within a period of six to ten years have partially recovered from previous shifting cultivation. They are, however, continuously exposed to interference from the grazing of cattle and goats and the collection of firewood. Such mixed forest patches still contain more than 25 species of tree. The following trees have been specified by name, during clearing operations by the Juang of Upper Kansa:[22] Katanguru (J) (*Gardenia latifolia)*, Ale (J) (*Mangifera indica),* Bija (J) (*Pterocarpus marsupim),* Antanak (J) (*Terminalia alata),* Teren (J) (*Diospyros Melanoxylon*), Bagrut (J) (*Schleichera Oleosa*), Utui (J) (*Artocarpus lacucha),* Sisu (O & J) (*Dalbergia Sp.*), Koimo (O) = Colombo (J) = *Adina cordifolia* or *Mitragyna Parviflora*), Chaoli (J) (*Elaeodendron glaucium*), Singabajani (J) (*Canthium Dydymum*), Karat (J) (*Plumeria rubra*), Jambu (J) (*Syzygium cumini*), Sargiya (J) (*Shorea robusta*), Kuklap (J) (*Aegle marmelos*), Silim (J) (*Indigofera cassioides*), Kiring (J) (*Hollarhena antidsenterica*), Sidom (J) (*Lagerstroemia parviflora*), Utikulikak (J) (*Nyctanthes arbor tristis*), Bara (J) (*Ficus bengalensis*), Sundru (?), Murucha (O) = Kundulu (J) (?), Haldiani (=O) = Jelai (J) (?), Gangaseuli (O) (?), Dhatingi (O) = Sinang (J) (?), Kuchai (O) = Rabu (J) (?). Sal (*Shorea robusta*) is not the dominant species in forest patches selected for shifting cultivation in Upper Kansa.

Clearing is hard work, under the scorching sun during the months of March and April. A working day on a swidden plot lasts between four and five hours, plus resting periods totalling approximately one hour. Dependent upon the size of a new plot, a working group takes several days to clear it. To clear a one-hectare plot takes about twenty days for one man or four days for a working group of five. McDougal (1963:31) estimates that to clear one hectare takes eighteen man-days of labour, based on a six hours working day. Additional days may be spent by the male members of the household, clearing any of the remaining swidden area, which has not been cleared by the working group. After clearing, the site is left to dry for between two weeks and one month. It is then set on fire, in order to burn all the dried organic matter, before the heavy monsoon rains start usually towards the middle of June. Burning is

[22] J = Juang term, O = Orya term, ?: botanical term not found

done individually, by male members of a household, and does not involve much labour. A site is burnt twice as the first fire does not usually convert all the organic matter to ash. No other fertilizer is added to the swidden plots.

Bush-fallow cultivation is less labour-intensive by comparison to forest-fallow cultivation; only small trees and bushes have to be cut before burning. When asked, why they do not clear the denser forest patches which exist in their proximity, the Juang men of Upper Kansa argued that this would constitute a greater expenditure of labour. However, they also mentioned, that the forest guards would not tolerate the clearing of denser forest. A further reason is their preference of having the fields nearby the village, for easier control; especially as elephants have become a serious problem in recent years. Other villagers may be more easily mobilised to help when elephants threaten to destroy the paddy yields and endanger the lives of the people. However, the bushy forest allows the growth of wild grass; their roots are not destroyed by fire, and considerable work for hoeing and weeding is involved in the preparation of the new swiddens for cultivation.

> "When shortening of fallow leads to the clearing of bush instead of secondary forest and hoeing and weeding become necessary, the latter operations add more to labour requirements per hectare than is saved by the fact that bush rather than secondary forest has to be cleared away. In addition, yields per hectare are likely to decline considerably. Hence, there is a strong presumption that that the transition from the system of forest fallow to that of bush fallow will be accompanied by a decline in output per man-hour" (Boserup 1998:30).

The fact that the Juang use the plough wherever possible, and thus reduce labour for weeding, may explain their preference for shorter fallow periods. Declining fertility, in relation to a shorter fallow period, seems to be acknowledged by the Juang.Land which gives a good yield is called *pakalo jumi* (mature soil), and its features are described as follows: the fallow period of such land has been more than twelve years, the area was covered by dense forest, hence no grass grew under the trees and during the rainy season, after the rainfall, a special "smoke" comes out from the soil (which means that the soil is heavily saturated with water, which it retains well). The fact that the Juang know about the advantages and disadvantages of shorter and longer fallow periods, indicates that they take into account various factors before deciding upon the actual length of fallow periods.

After the rain starts, there is a rapid growth of weeds and sprouts in the new swidden plots, which makes weeding necessary, while broadcasting the *niger* seed (*Guizotia abyssinica; J=ramtila*); the main product cultivated on first year swidden plots in the months of July-August. This takes place approximately two to three months after burning, and after about two months of rainfall. *Suturi* seed (*Vigna umbellata*, a pulse variety*)* is dibbled at the foot of the dried trees, which have been left uncut. *Sulur* (*Phaseolus mungo*; O=*biri*; black gram, a pulse variety) is also cultivated on first year *toila* land.

Where possible, during the month of July, the men use the plough after the rain has softened the soil, to facilitate cleaning before sowing. If the terrain and slope make ploughing difficult, de-bushing and weeding, while sowing, is done by means of an axe and *gonat (goronda=O)*, a small hand hoe. By removing the weeds, the soil is softened and used to cover the seed. Weeding by hand takes almost three times longer than with the plough.

Cultivation of oilseed *(niger)* is mainly men's work, while women are busy with weeding the second year swidden plots. However, women may also help on first year fields. After *niger* is sown, no more work is done until the harvesting of all the crops, which is done by both men and women, during the month of December.

Considering the expenditure of work in Upper Kansa, neither time for clearing nor available area were limiting factors for the size of the new swidden area. The men from the village could have cleared more forest than they did. They were not limited by any other agricultural activities, during the time of clearing, and they would have had enough time to clear and burn

a larger area before the rain started. The clearing of bush and forest is only possible after the performance of a ritual called *pus puni,* which takes place during the month of January, and which initiates the annual subsistence cycle. The men of Upper Kansa started clearing towards the middle of March, and four weeks later, the main work had been done by three working teams. The Juang men in Panasanasa, an interior village, started clearing towards the end of February, had longer working days (six to seven hours) and continued clearing well into the month of April. A Juang village such as Upper Kansa, with relatively easy access to the market of fuelwood and timber, can afford to put less emphasis on shifting cultivation.

2nd year swidden plots: *bualok* (*bua* = paddy, *lok* = place):
Work on 2nd year swidden plots starts in the month of April, with the removal, mainly by the women, of weeds, roots and small bushes, which have grown on the first year fields together with oilseed (*niger*); these continue to grow after the oilseed harvest. While removing the vegetation, the soil is softened and loosened. The organic waste is burnt in the fields. No other fertiliser is added. After the first light rains, during May and June, the weeds grow rapidly again. Thus, during sowing which starts in June, the weeds have to be removed again. Where the terrain permits, a plough is used, to uproot weeds and soften the soil. This is an exclusively male activity. The use of the plough is dependent more upon the degree to which the plot slopes, and less upon the condition of the ground: the men even master the art of ploughing fields full of stones; it is only where the slope does not allow ploughing, that the work is done by hand-hoe (*goronda*). Broadcasting of paddy seed (*Oryza sativa*) mixed with the pulse varieties *senai* (*Cajanus cajan* / O = *harada*) and *sulur* (*Phaseolus mungo* / O = *birhi*), goes hand in hand with weeding; while removing the weeds, seeds are covered with soil. Two types of millet, *Akayang* (*Pennisetum italicum*; O = kangu) and *kudu* (*Eleusine coracana* / *O = mandia*) together with *kalar* (*Vigna unguicalata* / *O =ruma*) are sown at the edge of the field.

A second weeding has to be carried out during July and August; some weeks after sowing. Weeds are removed before they grow larger than the paddy plants. They are uprooted by hand, and as rainfall continually softens the soil, they come out easily. Weeding is a laborious process, and is carried out by groups of women in rotation. However, part of the weeding is carried out by individual male and female members of a household. The harvesting of paddy begins towards the end of September. *Kudu* (millet) is harvested in early October, followed by *kalar* (beans) later in the month. In November *sulur* (pulse variety) is harvested and in December *senai* (pulse variety).

Again, a comparison with the agricultural cycle of the more interior village of Panasanasa, shows that the clearing of second year swidden plots could be started earlier. In this village the women begin their work on second year plots in the month of February and provided that there is sufficient rainfall during May, they then start to sow. However, early sowing carries the risk of the seeds drying up in the soil due to the lack of moisture. There is some flexibility over when second year plots may be cleared, as work may be distributed over several months. However, bottle necks with regard to labour may be a problem for the second weeding as it must be carried out in due course (within a limited period); thus there has to be a balance between the area cleared and availability of labour to weed this area later.

The swidden plots are then abandoned for several years. According to the Juang, it is the excessive growth of weeds which prevents them from cultivating for a third year. Therefore, each household cultivates two swidden fields annually; one first and one second year plot. With the exception of clearing and burning new forest patches and ploughing the first and second year swidden plots, all other work is performed by both men and women, albeit not to the same extent. The women carry out more and longer working days on the swidden plots; in

the activities of clearing second year *toila* fields and weeding them during the growth of crops. Co-operation between households mainly takes place among the men for the clearing of new forest patches, and among the women for the weeding of the second year swidden plots. Very little wage-labour is involved. The women and men of Upper Kansa reduce their labour input for shifting cultivation and compensate for the lower yields of smaller cultivated areas by the sale of wood and by undertaking wage labour. It will be shown that women bear the greater responsibility for obtaining rice from the market than from their own fields.

The use of the plough in shifting cultivation among the Juang seems to have expanded within the twentieth century. Based on his observations, on a tour of Keonjhar in 1942, Elvin Verrier (1948:59) mentions that only a few of the Juang have ploughs and cattle and that the main agricultural implement is the *goronda* hoe. Twenty years later McDougal writes:

> "At present most families use the plow, some which do not own bullocks, and can only borrow them temporarily from other families for plowing, must hoe part of the field, while a few families hoe the entire field. The plow (*siluk*) is constructed of wood: it has a shovel-shaped point into which a metal plowshare is usually, but not invariably, fixed" (McDougal 1963:33).

He considers the use of the plough as reducing labour in cultivation, but increasing negative effects on land resources, however, without giving further details (ibid. 56). Elwin Verrier drew the same conclusion in the 1940s:

> "The Juang method of axe cultivation resembles that of the Bhuya and is very harmful to the jungle. Clearings are made, the trees are felled and fired, and then the ground is dug up either with the hoe or with the plough. This represents a much more serious attempt at cultivation than that practiced by the Baiga, for example, or by the Maria of the Abujhmar Hills who simply sow the seed in the ashes or at the most dibble a little for their pulses. The introduction of the plough onto the hill slopes greatly increases the danger of erosion, delays recovery and is the real cause of the prodigious devastation of the Bhuya Pirh of Keonjhar, where the people have begun to keep plough cattle on a large scale. The danger is less among the Juang, for comparatively few have ploughs, but in the neighbourhood of a large and prosperous village like Balipal great damage has been done. (...) The Juang have no taboo on the use of the plough, nor do they share the Baiga belief that if they tear the breast of the earth they will be eaten by tigers. But they certainly regard axe-cultivation as having divine authority and as established from the foundation of the world" (1948:59-60).

In 1998/99, out of the twenty households in Upper Kansa, eighteen families had both a plough and cattle. One old widow had no cattle and no plough. One family had only one cow and depended on the borrowing of a bullock from a brother of the household head. The topography of the terrain in Upper Kansa allows the use of the plough in parts of the swidden plots as has been shown above. The plough is also used in other types of fields. The total number of cattle in Upper Kansa during data collection in 1998-1999 was 71; of these 31 were bullocks, 40 were cows. The number and composition (cows and bullocks) of cattle are unevenly distributed among the households; some use only cows for ploughing, whereas others harness one cow and one bullock together. There are various advantages to a household in having numerous cattle: the more cattle they own, the more dung is produced, the cows may produce offspring, and for ploughing purposes bullocks are better than cows. There is always the possibility of losing cattle due to sickness and death and it is therefore advisable, in such a case, to have some surplus animals. There are no extra costs incurred by individual families, in having more cows or bullocks, as the cattle of the whole village are taken care of, in rotation, by the Juang men and boys.

Cattle graze either nearby, or at some distance, on village territory or even on neighbouring village territories. To estimate the effects of such grazing on the natural environment is difficult. Grazing cattle on *guda* fields, which are used as pastures during fallow periods, adds manure to the soil. Dung is carefully collected from the cowsheds and applied to nearby fields, thus supporting farming activities. Conversely, cattle and goats, which are partly fed in

and from forest vegetation, may result in lowering the regeneration rate of the vegetation; this is even perceived to be so by the villagers. They explain the slow regeneration of swidden plots as being down to human and animal interference, in that firewood is collected and the animals search for fodder in this area. In addition to their own cattle, herds of both cattle and goats belonging to outsiders from the plain are driven into the forest area of Upper Kansa in order to keep them away from the paddy fields.

In comparison to cattle belonging to the richer peasants in Orissa, those of the Juang are generally in a rather poor condition; many animals are small, meagre and often sick.

3.1.1.2 Productivity of land

McDougal gives a harvest rate of 1:5.5 for short-term (fast-growing) rice and a harvest rate of 1:7 for long-term rice on swidden plots. Thus:

> "Yields from swidden cultivation are very low, with considerable variability in the yield per unit of seed from year to year, and between different fields in the same year. Productivity is directly affected by climatic fluctuations and variations in local conditions within the same small area. Moreover, due to their location in the forest and their relatively large area, swidden fields are difficult to protect from the depredations of wild animals" (McDougal 1963:49).

He does not give any figures for paddy yields on swidden plots. Bose (1967:118) calculates between eight and twelve *khandi* [23] paddy per acre (160-240 kg paddy) and assumes an average of ten *khandi* paddy, i.e. 200 kg paddy per acre for second year swidden plots. This is a yield of 494 kg paddy per hectare and corresponds to approx. 346 kg rice per hectare.

Divided by six, if assuming a harvest rate of 1:6, about 82 kg seed per hectare is needed. This is approximately 20% less seed than the amount required for permanent rice fields (*bila* land).

3.1.1.3 Productivity of labour for paddy cultivation

The cultivation of approximately one hectare of *toila* land with paddy in the second year requires the following labour input in man-days, if the use of the plough is not possible:

Table 7: Labour input for paddy in 2nd year shifting cultivation land

Activities	Man-days per ha
Clearing of bushy area (kajalok)	40
1st weeding and sowing by hoe (goronda)	80
2nd weeding	80
Harvesting, threshing and transport	70
Total	**270 (189*)**

* As these numbers are based on calculations of man-days of labour under conditions of family labour, they have to be reduced in order to be comparable to labour input under conditions of farm wage labour for wet rice cultivation (*bila*) (see 3.1.4.3) I estimate that a man-day of family labour is about 30% shorter than a man-day of farm wage labour. Thus the 270 man-days will equate to 189 man-days of farm wage labour. This estimation is based on observations of working days and rhythm in the two villages. In the following tables of labour input the days of family labour are converted into days of farm wage labour (number in brackets).

If an average yield of 494 kg paddy per hectare is assumed, this results in an output of 2.61 kg paddy or 1.83 kg rice per man-day, i.e. two times less than the output of *bila* paddy produc-

[23] *khandi* is a local measure of capacity of crops: 1 *khandi* paddy = 20 kg paddy = 14 kg rice

tion under less favourable conditions (see below). However, additional crops are cultivated on 2nd year *toila* land. They add to the agricultural output per man-day.

The productivity of labour per hectare is higher if the plough is used. It reduces the labour input for 1st weeding plus sowing by approximately four times:

Table 8: Labour input for paddy in 2nd year shifting cultivation land with plough

Activities	Man-days per ha
Clearing of bushy area (kajalok)	40
1st weeding and sowing by plough	20
2nd weeding	80
Harvesting, threshing, transport and storage	70
Total	**210 (147*)**

* As these numbers are based on calculations of man-days of labour under conditions of family labour, they have to be converted in days of wage labour in order to be comparable to labour input under conditions of farm wage labour for wet rice cultivation.

If an average yield of 494 kg paddy per hectare is assumed, this results in an output of 3.36 kg paddy, i.e. 2.35 kg rice per man-day. This is still 1.5 times less than in wet rice cultivation *(bila)* under less favourable conditions (see below). However, in many cases the plough may only be used on part of the cultivated *toila* land. If it is assumed that the plough is only used on half of the area, this results in the following labour input in man-days per hectare:

Table 9: Labour input for paddy in 2nd year shifting cultivation land with plough on half of the area

Activities	Man-days per ha
Clearing of bushy area (kajalok)	40
1st weeding and sowing of 0.5 ha by plough	10
1st weeding and sowing of 0.5 ha by hoe	40
2nd weeding	80
Harvesting, threshing, transport and storage	70
Total	**240 (168)**

* As these numbers are based on calculations of man-days of labour under conditions of family labour, they have to be converted in days of wage labour in order to be comparable to labour input under conditions of farm wage labour for wet rice cultivation.

Output per man-day now is approximately 2.94 kg paddy (2.05 kg rice). This is 1.7 times less than in wet rice cultivation (*bila*).

When discussing labour involved in paddy cultivation on swidden fields *(toila)* and on permanent fields (*bila*), it is generally agreed that the preparation of land for cultivation, as well as weeding and harvesting, is much more laborious in *toila* cultivation than in any other type of cultivation, as there is more of an abundance of weeds. The harvesting of paddy in a *toila* field is done by cutting the stalks individually, whereas in *bila* fields paddy stalks may be cut in bundles. Transport in the hilly area is more strenuous than on the plain. Thus, part of the paddy yield is threshed on the spot on small stony areas.

3.1.1.4 Productivity of labour for niger *cultivation*

According to local informants approximately 8 *pai niger* seed is required to cultivate approximately one hectare of *toila* land. The weight of 1 *pai niger* is 1 kg. Assuming a low har-

vest rate of 1:10, the yield is approximately 80 *pai niger*, i.e. 80 kg *niger*. The local exchange rate of *niger* to rice is 1:2, resulting in 160 kg rice as per the local exchange rate.[24]

Without the use of the plough, labour input per hectare is estimated as follows:

Table 10: Labour input for *niger* on 1st year shifting cultivation land

Activities	Man-days per ha
Clearing	20
Burning	7
Cleaning, weeding and sowing by hand	42
Harvesting	16
Total	**85 (60*)**

* As these numbers are based on calculations of man-days of labour under conditions of family labour, they have to be converted in days of wage labour in order to be comparable to labour input under conditions of farm wage labour for wet rice cultivation.

This is an output of 1.33 kg *niger* per man-day or 2.67 kg rice per man-day respectively. If assuming a higher harvest rate of 1:15, output per man-day is 2 kg *niger* or 4 kg rice. If assuming a harvest rate of 1:20, output per man-day is 2.67 kg *niger* or 5.33 kg rice respectively.

Therefore, even in cases of low harvest rates, the productivity of labour on *toila* land is higher for *niger* than for paddy cultivation. Under favourable conditions it is close to, or even exceeds labour productivity of *bila* cultivation as will be shown below.[25] With the use of the plough, labour productivity increases:

Table 11: Labour input for *niger* on 1st year shifting cultivation land with plough

Activities	Man-days per ha
Clearing	20
Burning	7
Cleaning, weeding and sowing by plough	15
(2nd weeding)	Not done in Upper Kansa
Harvesting	16
Total	**58 (41*)**

* As these numbers are based on calculations of man-days of labour under conditions of family labour, they have to be converted in days of wage labour in order to be comparable to labour input under conditions of farm wage labour for wet rice cultivation.

[24] 1kg *niger* can be exchanged for 2 kg rice. However, this exchange rate may change as per the bargaining power of the two parties involved in bartering

[25] S. Bose reports 2 *maunds niger* yield per acre (1 *maund* = 2 *khandi*). This will give a yield of 5 *maunds* per hectare, which is equal to 10 *khandi* or 200 *pai niger*, i.e. 200 kg *niger*. If exchanged with paddy (not rice) for an exchange rate of 2.5 as in his time (the exchange rate of *niger* to rice is indicated by him as 1:1.75), 500 *pai* paddy could be bartered from 1 hectare *niger* cultivation. This corresponds to 500 kg paddy or 350 kg rice. Output per man-day calculated in rice is then 7 kg per day and exceeds the calculations based on data from Upper Kansa even under very good conditions. A yield of 200 *pai niger* per hectare is higher than possible yields under very good conditions reported by the Juang of Upper Kansa. Unfortunately Bose does not give any data on labour input for *niger* cultivation. Fallow periods, however, in his Juang village seemed to be longer, with 12 years, than in Upper Kansa. Therefore greater yields per hectare could be as a result of better soil fertility after longer fallow periods.

Output per man-day of labour with various harvest rates now varies between 3.9 kg rice (5.57 kg paddy), 5.85 kg rice (8.35 kg paddy) and 7.8 kg rice (11.14 kg paddy).

With the use of the plough in half of the area, labour input is as follows:

Table 12: Labour input for *niger* on 1st year shifting cultivation land with plough on half of the area

Activities	Man-days per ha
Clearing	20
Burning	7
Cleaning, weeding and sowing 0.5 ha by plough	7.5
Cleaning, weeding and sowing 0.5 ha by hand	21
(2nd weeding)	Not done in Upper Kansa
Harvesting	16
Total	**71.5 (50*)**

* As these numbers are based on calculations of man-days of labour under conditions of family labour, they have to be converted in days of wage labour in order to be comparable to labour input under conditions of farm wage labour for wet rice cultivation.

Under these conditions output per man-day of labour varies between 3.2 kg rice (4.57 kg paddy), 4.8 kg rice (6.85 kg paddy) and 6.4 kg (9.14 kg paddy) rice.

3.1.1.5 Ownership

In literature about the Juang ownership of *toila* land, it is generally described as alternating between private ownership of cultivated land by individual households, to common property of land by the village community (McDougal 1963:287; Rout 1969:30f). As long as swidden plots are cultivated for a period of two or more years, they are regarded as the property of the households who work them. In reality, it is the produce of the field, as opposed to the land that is privately owned, which is expressed as follows by Bose (1967:6):

> "In fact, in areas of shifting cultivation, land is not owned permanently by any individual, but is treated as communal property. When a plot of land is, however, alloted to him for a season, he enjoys the full fruits of his labour."

New plots are redistributed among the households, according to their needs and requirements, after villagers decide to resume shifting cultivation on the same forest patch years later. The annual redistribution of new swidden plots is flexible accomodating the current composition and situation of the family, with regard to age, sex and number of household members. Selection of forest patches for shifting cultivation, as well as distribution of new swidden plots, are embedded in the general pattern of common decision making among the male family heads. After cultivation, the abandoned area regains its status as common property of the village. The performance of rituals by the village priest, together with a unanimous decision by all of the family heads, about the new site for 1st year cultivation, reinforces this representation of swidden land as being common property of the village.

However, when the villagers of Upper Kansa were questioned about their swidden fields, it transpired that a family usually cultivates the same field, even after they have abandoned it for several years. They perceive the land that they have previously cultivated as belonging to their household and this claim is not denied by other villagers. Thus, in practice, there seems to be a customary right to swidden fields. It is possible that the length of the fallow period is linked to the type of ownership; as fallow periods are rather short in Upper Kansa, claims to land are more pronounced than under conditions of long fallow periods.

An even stronger concept of ownership, regarding swidden plots, was observed in a neighbouring Juang village; Kundei, which like Kodipasa, is situated at the foot of a range of hills. It is a mixed village, mainly inhabited by the Juang, and to a lesser extent, the Munda, Santal, Gouda and Mohanto (a caste). Shifting cultivation is exclusively carried out by the Juang, on the slopes of the hill, in combination with *guda* and some *bila* cultivation. However, the fallow period in Kundei is even shorter than in Upper Kansa. After two years cultivation, the swidden plots are left for only five to six years, resulting in bushy vegetation only. Here, the ritual distribution of the swidden plots has disappeared; each household selects its own area for cultivation, and individual households return to the same plot, after a fallow period of between five to six years. This indicates a growing sense of private land ownership in connection with the intensification of farming.

As the size of a new swidden plot in Upper Kansa is not limited by the scarcity of land for shifting cultivation, every household may choose an area of viable size for cultivation. The villagers of Upper Kansa do not recall any conflict regarding land distribution and they claim that there is sufficient land for everyone, for the purpose of shifting cultivation. The partial resettlement of the village to the plain, in Kodipasa, may well have reduced the pressure on forest resources for shifting cultivation: with an additional fourteen Juang households, now residing in Lower Kansa, land scarcity might well be an issue in Upper Kansa.

During our visit, in 1999, it was observed that not all of the area, which had been distributed among the households, at the beginning of a new cycle of shifting cultivation, had been cultivated. Some households did not clear the whole patch of forest that they initially claimed and received for cultivation. It is worth noting, however, that even after clearing, part of a plot may not be sown due to various factors such as scarcity of seed, bad timing, climatic disturbances or social factors (sickness, conflicts within the family). This also applies to 2nd year swidden plots.

As already mentioned, women in Upper Kansa started their work on 2nd year swidden fields later than the Juang women of the more remote villages such as Panasanasa. Again, neither land nor time were limiting factors for the area cultivated with paddy in the 2nd year. Instead of starting agricultural work earlier, the women of Upper Kansa combined working in the fields, with collecting and selling wood, for as long as was possible .

3.1.2 *Guda* land

Guda cultivation refers to cultivation of land bare of forest vegetation, or in the words of Bose (1967:145) to a “temporarily captured field for cultivation but need not require felling of trees. This land is generally covered by bushes, which are cut down for firing”. Using the length of fallow periods as a measure of intensity, this type of cultivation is more intensive than shifting cultivation. It may be classified as a type of semi-permanent cultivation, with fallow periods of between two and five years. As with shifting cultivation, it is restricted to rain-fed land and is therefore highly dependent upon rainfall.

Typically, such land is to be found in flat areas or areas with a low slope degree, which allows the use of the plough. There is a clear tendency towards permanent cultivation of *guda* land in Kodipasa, due to a growing scarcity of land. In Upper Kansa, fallow periods of up to four to five years allow the regeneration of this type of land. During the fallow period, *guda* land is used as pasture for cattle and goats, and in this way some organic manure is added to the land. However, during cultivation there is no additional fertiliser applied to *guda* fields, except ash, which results from the burning of cut vegetation before cultivation. It has been observed that swidden plots in Upper Kansa sometimes border on *guda* land, i.e. where swidden plots are cultivated they merge into adjoining *guda* land. Besides *guda* fields next to the swidden plots, a household usually also cultivates *guda* fields in other areas.

3.1.2.1 Cultivation techniques, sexual division of labour and labour cooperation

The pattern of cultivation resembles *toila* cultivation: in the first year oilseed (*niger*) is grown, followed by paddy cultivation in the second year. Second year cultivation may be mixed with other crops, as observed in second year *toila* fields.

De-bushing and ploughing of *guda* fields for the cultivation of *niger* goes hand in hand with the cultivation of first year *toila* land, during the month of August. As it involves ploughing, it is mainly men's work. Like in first year *toila* cultivation, there is no weeding after the sowing of *niger*. The harvesting of *niger* takes place at about the same time as the harvesting of *niger* in first year swidden plots.

For second year *guda* cultivation, weeding has to be done before the sowing of paddy. A first ploughing is carried out after the first slight rainfall, towards the end of April, to break the earth and soften the soil. A second ploughing follows some weeks later. While sowing at the beginning of June, a third ploughing together with weeding is done. While the men plough, the women remove the weeds uprooted by the plough by hand. However, priority is given to the work on second year *toila* fields, where the preparation of land for paddy cultivation is more laborious than work on second year *guda* fields. The third ploughing, including sowing of paddy on *guda* fields, is done at about the same time as the sowing of paddy on second year *toila* fields. Only a few days after sowing *guda* paddy, a fourth ploughing takes place. A second weeding, which is done mainly by the women, is carried out from mid July till mid August. This partially overlaps with the weeding to be done on second year *toila* fields. *Guda* paddy is harvested from the middle of September onwards.

3.1.2.2 Productivity of land

Harvest rates of *guda* land mainly depend upon the length of fallow periods. According to the villagers of Upper Kansa, oilseed as well as paddy yields of *guda* land are usually lower than the yields of *toila* land. Oilseed yields, by comparison, are considerably lower, whereas paddy yields may be similar to those of 2nd year *toila* plots.

The harvest rate for oilseed on *guda* land drops to approximately 1:5 and the harvest rate for paddy is about 1:5. Thus, *niger* yields per hectare are only about 40 kg, corresponding to 80 kg rice. Paddy yields are around 400 kg per hectare (i.e. 280 kg rice).

However, if labour input is calculated, labour productivity of *guda* cultivation is rather high, which helps to explain why *guda* land is cultivated, even when land productivity is rather low.

According to Nayak et al. the fertility of *guda* land lying at the bottom of hills, where shifting cultivation is practised, is greater than that of *toila* land "due to the deposit of eroded soil from the hill slopes" (1993:129). However, this is unconfirmed by the inhabitants of Upper Kansa and *guda* land is not always situated in such a position.

3.1.2.3 Productivity of labour for paddy and niger *cultivation*

Less labour is involved in *guda* cultivation than in 1st year *toila* cultivation, as it requires less effort to clear the fields after shorter periods of fallow, especially if a plough has been used on the entire field. Although *Guda* fields may be rather stony, it is still possible to use the plough on them.

The cultivation of one hectare of *guda* land for *niger* in the 1st year requires approximately the following labour input in man-days:

Table 13: Labour input for *niger* on 1st year *guda* land

Activities	Man-days per ha
Clearing	7
Cleaning, weeding and sowing by plough	15
Harvesting	8
Total	**30 (21*)**

* As these numbers are based on calculations of man-days of labour under conditions of family labour, they have to be converted in days of wage labour in order to be comparable to labour input under conditions of farm wage labour for wet rice cultivation.

Labour input varies with the length of fallow period; the shorter the fallow period, the less labour input is required, but also yields decrease. However, the output per man-day of labour is still high, with *niger* yields corresponding to 3.81 kg rice (or 5.44 kg paddy).

The cultivation of one hectare of *guda* land for paddy cultivation in the 2nd year requires approximately the following labour input in man-days:

Table 14: Labour input for paddy on 2nd year *guda* land

Activities	Man-days per ha
1st ploughing	10
2nd ploughing	10
3rd ploughing incl. sowing and 1st weeding	5
4th ploughing	5
2nd weeding	70
Harvesting and transport	10
Threshing and storage	10
Total	**120 (84*)**

* As these numbers are based on calculations of man-days of labour under conditions of family labour, they have to be converted in days of wage labour in order to be comparable to labour input under conditions of farm wage labour for wet rice cultivation.

Assuming a yield of 400 kg paddy (280 kg rice), the output per man-day is 4.76 kg paddy or 3.33 kg rice per man-day.

Calculating the average labour productivity of *guda* cultivation (1st and 2nd year) per man-day, it equates to 3.57 kg rice (5.1 kg paddy) per man-day of labour, which is still higher than the average labour productivity of *toila* cultivation.

3.1.2.4 Ownership

Today, *guda* land in Upper Kansa, as well as in Kodipasa, is owned by individual households. While in Kodipasa, it is mainly registered as private land, in Upper Kansa it is *de jure* government land. In Upper Kansa, the villagers cultivate various areas of *guda* land in rotation and all the individually cultivated *guda* fields lie in the same area. As with swidden fields, there is continuous shifting between various *guda* areas, as there is a fallow period of between four to five years. Again, in Upper Kansa, there is no indication of a shortage of *guda* land. During my stay it was observed that the villagers left large potential *guda* areas uncultivated. The exodus of several of the villagers down to the plain has certainly reduced any potential pressure on this type of land in Upper Kansa. The scarcity of labour and the possibility of obtaining income by means other than farming, seem to be the determining and decisive factors in explaining the extent to which cultivation of *guda* land in Upper Kansa is practised.

In Kodipasa the situation is quite different. Land scarcity here has resulted in a shortening of fallow periods to between two and three years, and a process of definite privatisation took place in the last few decades. However, this process has now come to an end, and there is no more "free" *guda* land, each and every plot belongs to a particular household.

With the official land settlement since the beginning of the 1970s, land rights have been fixed and fields have been officially registered. The villagers in Kodipasa recall conflicts among the Juang households over *guda* land: during the land settlement, patches of *guda* land had been claimed by various households and several people were accused of having given or even sold *guda* land to immigrants, without the consent of the previous owners. Typically, in such cases, the disputed land had not been cultivated for several years and the last tiller of the plot, before it had lain fallow, could not assert his right of ownership on the basis that he had cultivated the land.

It appears that long fallow periods have weakened the incontestable right of a family to cultivate the same patch of *guda* land. This has applied in particular to widows with small children, who have been forced to reduce agricultural activities due to the scarcity of labour (loss of ploughmen) and in this way lost uncultivated *guda* land. This was an irrevocable process at the time of land settlement and registration. Nowadays a private owner may keep *guda* land fallow for many years, without fear of someone else cultivating it. Moreover, the government, during land settlement, seems to have taken advantage of the vague ownership structure with regard to *guda* land in traditional Juang communities. It was mainly *guda* land, which was redistributed by the government among the poorer Juang families of Kodipasa, among resettled villagers of Upper Kansa in Lower Kansa and among the households of the Munda, Santal and Gouda immigrants. For this purpose *guda* land had been converted into *bila* land with the help of external wage labour, which was employed for the purpose of levelling it and to making the necessary embankments.

3.1.3 *Badi* land

3.1.3.1 Cultivation techniques, sexual division of labour and labour cooperation

The land adjacent to a house is referred to as *badi* land. As it is nearby, cow and goat dung, ash from the hearth and other organic waste from the household are carried and used as fertiliser on this land before cultivation. This allows permanent cultivation. *Badi* land behind the house is usually subdivided into two plots: one plot is cultivated with *juani* (*Zea Mays Linn*; O=*maka;* maize) in June and some other crops such as *baitalu* (*Cucurbita maxima*; O=*boitalu*; yellow gourd, a pumpkin) and other pumpkins. At the border of the plot *kudu* (*Eleusine coracana*; O=*mandia;* finger millet) and *jinjari* (*Sorghum vulgare*; O=*Gangei*: sorghum) are sown. After the harvesting of maize in the second half of August, the plot is cultivated with *soriso* (*Brassica campestris;* mustard) during the second half of September. Leaves of the young mustard plants are used as greens. Mustard is harvested from the end of December until the middle of January. Harvesting of finger millet (*kudu*) and sorghum (*jinjari*) takes place during November and December.

The second plot is cultivated with paddy in June, sometimes mixed with the pulse varieties *senai* (*Cajanus cajan*; O= *harada*) and *sulur (Phaseolus mungo;* O=*biri*). Paddy harvesting starts in the middle of September, *sulur* in October and November and *senai* in November and December.

After rainfall, *badi* land provides a number of wild growing greens consumed as green vegetables in addition to rice.

Badi land is ploughed twice. During the second ploughing, sowing and weeding is carried out on the area of land where paddy is cultivated. In Upper Kansa, women join together to weed their *badi* fields a second time, as this needs to take place at the same time as the weeding of the second year *toila* fields, starting at the middle of July. Due to the application of fertiliser there is an abundant growth of weeds.

3.1.3.2 Productivity of land

Harvest rates of *badi* land for paddy are higher than for *guda* and *toila* land, but lower than for wet paddy cultivation; around 1:8 in a normal year.

None of the other crops cultivated on *badi* land are a substitute for rice as a staple food in the villages under study. Maize is only grown by the Juang, and the small roasted corn cobs are consumed as snacks. Pulse varieties are boiled in water and consumed as a supplement with rice. Millet is prepared as gruel.

3.1.3.3 Productivity of labour for paddy cultivation

The cultivation process is the same as for *guda* cultivation. Less labour is required for ploughing; as *badi* land is permanently cultivated. But weeding requires a lot of work. Thus, the total labour required is about the same as for *guda* paddy cultivation, but as yields are higher, labour productivity is higher, equating to 7.62 kg paddy (5.33 kg rice) per man-day of labour in a good year. However, the size of *badi* land is restricted by the amount of available cow and goat dung from a household and usually only a small amount of land is cultivated behind each house.

The cultivation of the other crops does not require much work. No weeding is done after ploughing.

3.1.3.4 Ownership

Badi land is privately owned.

3.1.4 *Bila* land: Wet rice cultivation

This type of land is used exclusively for the cultivation of wet paddy. *Bila* land allows for permanent cultivation, which is common in the lowland and plain areas of Orissa. However, the number of crops harvested on *bila* land varies between one and three per year. This is mainly dependent upon irrigation facilities; water being one of the most critical factors in rice cultivation. Thus, in contrast to dry or upland paddy cultivation (on swidden plots, *guda* land and *badi* plots), cultivation of low land involves manipulation of water resources.

3.1.4.1 Cultivation techniques, sexual division of labour and labour cooperation

In Kodipasa, *bila* cultivation is monsoon-fed mono-cultivation of wet rice, which to a high degree is still dependent upon annual rainfall. There are no systems for pumping and using groundwater for irrigation, no large water storage systems and no efficient canal systems for irrigating the rice fields.

To retain the rainwater, the *bila* fields are levelled and small bunds (embankments) are constructed. The levelling of *bila* fields in uneven or slightly rising terrain, results in a terraced structure of the landscape. As the area of Kodipasa is rather flat and the plain rises gently towards the foot of the hill, terracing here is on a low level. However, this is not to say that there are no differences with regard to the quality of various *bila* plots. As water scarcity is more often a problem than water abundance, fields lying at a lower level are more preferable

than upper fields, as they are provided with a better water supply, due to the natural flow of water, even if the fields lying at a higher level are not opened. The regulation of the water level in a field is carried out by the opening or closing of its bunds and only the owner of the field has the right to do this. Where possible, the water supply may be regulated by deriving water from the small rivulets which descend from the nearby hills. However, this method is also dependant upon the annual rainfall; in years of scarce rainfall these small rivulets do not supply enough water guarantee one harvest. After the monsoon period they run dry.

Only a few households in Kodipasa sometimes harvest paddy twice a year. It is risky to plant rice a second time. Unfavourable weather conditions may result a loss of the crop and a waste of seed and labour. In 1996, the Integrated Tribal Development Agency (I.T.D.A.) had planned and financed an irrigation canal, which was to have been fed by the Ardei Nadi (a perennial river which forms the natural boundary between Kodipasa and the neighbouring village of Jamudiha) and would have supplied water to part of the *bila* fields of Kodipasa village. This would have added water to the paddy fields, at times of insufficient rainfall, and under good weather conditions would even have allowed for a second paddy crop. The contract was given to a contractor and the canal was constructed by using the villagers as day labourers. Due to poor workmanship by the contractor, two years later the canal was useless; it leaked at several points and the supply at the river dam itself was completely destroyed.[26]

Low-scale irrigation facilities, managed by the individual households, are therefore mainly used to reduce the risk of crop failure and to maximize the use of rainwater. Such facilities do not allow for the cultivation of two or even three paddy crops a year as in other areas; in fact they cannot even guarantee a successful annual paddy harvest.

Scarce, excessive or untimely rainfall endangers successful paddy cultivation. What is called "drought" in the context of paddy cultivation in Orissa, refers to low precipitation at a time, when more rain is needed for paddy cultivation. A drought does not necessarily mean that the total amount of precipitation is less than in normal years, but its timely and spatial distribution adversely affects paddy cultivation.

The making of a *bila* field requires considerable labour input to level the land and set up the banks. Usually it is *guda* land that is transformed to *bila* land. Once established, annual maintenance however, does not require a high input of labour, compared to the initial input of labour (see also Bailey 1971:65). It mainly consists of repairing and keeping intact the bunds, which may be damaged by heavy rainfall. However, during the initial years, productivity of new *bila* land is lower than on other *bila* land, as the levelling process changes the soil structure and exposes subsoil.

Bila fields are classified according to their location and water retaining capacity; paddy fields in low land with good water retaining capacity are called *beda*, fields in medium land belong to the category of *dhipa* and fields at higher levels belong to the category of *duma*. This classification follows a regional classification of *bila* fields and all are Oriyan terms. Most of the *bila* fields in Kodipasa are *dhipa*; few are *beda* and *duma*. Most of the fields on the upper lands are *guda*.

After the first slight rainfall, *bila* fields are ploughed, for a first time, to break and soften the soil. A second ploughing is carried out prior to sowing, and dung from the cows and

[26] Small scale irrigation projects are an important part of the development strategies of Government Agencies as well as NGO's in the backward areas of Orissa and they respond to a strongly felt need by the rice farmers. However, their technical construction often suffers considerable deficiencies. In the above mentioned case of the canal system for the Kodipasa rice farmers, the contractor responsible for the canal construction enlarged his personal profit by reducing necessary construction materials to such an extent, that the system never functioned at all.

goats, which has been stored behind the house, is carried to the fields by the girls and women. However, as most households only have a few cattle, the dung is mainly used for *badi* cultivation behind the house.

After heavier rainfalls, from the middle of June onwards, the *bila* plots are ploughed a third time and paddy seed is broadcast. There is no line sowing and seed is sown without maintaining any specific distance between plants. Just after the third ploughing and sowing, women remove the weeds and refine (harrow) the soil with a hoe. Towards the end of July, the next weeding of the *bila* fields begins. This goes hand in hand with replanting and putting in order the rice seedlings. For this purpose a fourth ploughing is done in the fields, which have to be in a submerged condition. This ploughing softens the soil again and loosens the plants. Weeds can be easily uprooted, paddy seedlings are put back into the soil with the necessary distance to each other and surplus plants are removed. If the technique of transplanting is used, the seedlings are transplanted now.

Therefore, the cultivation requires four lots of ploughing and two weeding, before harvesting takes place.

Apart from ploughing, all other work is mainly carried out by the women. Weeding of *bila* plots continues until the beginning of September. Harvesting starts in middle of October and continues until the end of November. Both men and women are involved in harvesting and carrying the bundles of paddy to the house. If the threshing is done by bullocks, it is men's work. If it is done by foot treading, it is women's work. Winnowing is women's work; the fixing of the paddy in baskets made from ropes of paddy straw is men's work.

Broadcasting or transplanting:
If there is too much water in a paddy field during the time of broadcasting, there is a risk that the seed may rot due to too excess water. This not only depends upon the quantity of rainfall, but also on the situation in the paddy field. A plot situated in a low-lying area may be too wet to be broadcast, whereas there is no such risk for a plot at a higher level. If transplanted, seedlings are nursed in a separate plot where there is less water and transplanted later.

Another reason for transplanting instead of broadcasting, may be the lack of enough rain for the first ploughing. Preparing the soil for growing paddy can then only be done later, when normally second ploughing is carried out. Instead of ploughing three times, the fields are ploughed only twice, and under such circumstances it is better to transplant during the second ploughing. Finally, if there is some certainty that a *bila* plot will have sufficient water, a farmer may decide to transplant anyway, as less seed is required than for broadcasting. However, transplanting requires more labour input than broadcasting. Last, but not least, transplanting gives the farmer some scope for dealing with social constraints; if ploughing and broadcasting may not be done in the due course of time, a field may still be cultivated at a later stage. Paddy seedlings are nursed on a small patch of land with a nearby water supply, or on land with appropriate conditions of humidity.

However, the method of broadcasting clearly dominates, among the farmers of Kodipasa. The main reasons are probably the small portion of lowland paddy fields (only they bear the risk of being too wet at the time of broadcasting) and the higher labour input required by transplanting.

The varieties of paddy sown in *bila* fields are long-term varieties, i.e. they require more time to grow and to ripen and need more water for a longer period than paddy varieties grown on *guda* or *toila* fields, where the run-off of water does not allow the cultivation of long-term varieties.

The application of chemical fertiliser is rare in Kodipasa. Only 47 households use it, although on an irregular basis, depending on their annual financial situation.

3.1.4.2 Productivity of land

The harvest rate for *bila* cultivation of local rice varieties in Kodipasa is given by various farmers as approximately 1:9; 1:10 in a good year. This information has been given as data on the quantity of seed in *khandi* to the resulting quantity of paddy in *khandi*.

According to local farmers, High Yielding Varieties (HYV) with fertiliser, have a harvest rate of 1:12 in a good year up to 1:15 in a very good year. McDougal (1963:49) gives a harvest rate of 1:13 for irrigated *bila* land.

The yield of lowland local paddy varieties is approximately 850 kg paddy, i.e. 595 kg rice per hectare in a good year. This is 1.7 times higher than paddy cultivation on swidden fields.

If using HYV, 1500 kg paddy per hectare, i.e. 1050 kg rice may be harvested in a very good year on very good quality land, which is three times higher than the yield on a swidden plot. However, as will be analysed below, there is very little land of such quality in the area, and due to the scarcity of money, few households can afford HYV, chemical fertiliser, herbicides and pesticides in order to get exceptional output under favourable weather conditions.

3.1.4.3 Productivity of labour for wet rice cultivation

Wet rice cultivation is more intensive than shifting cultivation, because *bila* land is cultivated permanently and the yield per hectare is higher. Also labour productivity of this type of cultivation is higher than that of shifting cultivation: the cultivation of one hectare of wet rice on *bila* land requires more labour input than the cultivation of one hectare on *toila* land, but the increase of the output per man-day of labour is higher than the increase of labour input. This calculation is based on the average yields from swidden fields over a two year cultivation period However, when comparing the labour input and yield of paddy cultivation of a 2nd year *toila* field, with wet rice cultivation, this gives a completely different picture: much more labour input is required for the cultivation of one hectare of 2nd year *toila* land than for one hectare of *bila* land, while labour productivity is still much smaller than for wet rice cultivation (see table 16).

The following data on labour input for *bila* cultivation in Kodipasa, are based on the experience and calculations of a Gouda household, which cultivates all its *bila* fields exclusively with wage labour. The fact, that no family members of this household contribute farm labour to the paddy production, makes it easier to calculate the labour input. Other households using their own family labour, or combining it with wage labour are not able to give such detailed information about the total labour input per area, because they do not count the number of days and people used for *bila* cultivation and only give very rough estimations of labour input. On the contrary, those who pay, count. A man-day of farm wage labour lasts from approximately 9 a.m. till 5 p.m. (8 hours) including a one hour rest period. Ploughing is done from approximately 6 a.m. to 12 p.m. due to the heat later in the day.

Data has been collected on the number of man-days labour needed for an area cultivated with one *khandi* seeds, i.e. 20 kg and than converted into labour input per hectare.

The cultivation of one hectare of *bila* land requires the following labour input in man-days:

Table 15: Labour input for *bila* paddy

Activities	Man-days per ha
1st ploughing	10
2nd ploughing	10
3rd ploughing incl. sowing, 1st weeding	5

4th ploughing incl. replanting and 2nd weeding	15
2nd weeding continued	50
Harvesting and transport	20
Threshing and storage	20
Work on embankment	5
Total	**135**

However, a man-day of farm wage labour cannot be considered equal to a man-day of labour of somebody working on his own field: unwaged people do have certain freedom to come and go at their will and according to their needs, and work less regularly than wage labourers. Thus, calculations based on wage labour do not reflect the actual man-days worked on *bila* land using household labour: man-days in this case are shorter, but more numerous.

Therefore, output per man-day with an optimum output of 1500 kg paddy (1050 kg rice) is approximately 11 kg paddy (7.8 kg rice). Taking into account less favourable conditions and a lower yield of only 700 kg paddy (490 kg rice), output per man-day is 5.2 kg paddy (3.6 kg rice).

(Not included here is the initial labour required to make *bila* fields.)

3.1.4.4 Ownership

Bila fields are privately owned. It is the most valuable land in Kodipasa. Private ownership of land which had been cultivated on a permanent basis, was already common prior to the official land settlement in the research area.

3.1.5 Comparison of cultivation methods

The dominant cultivation system in Upper Kansa is shifting cultivation, with semi-permanent cultivation of *guda* fields. *Bila* cultivation is not possible on the hilltops. In Kodipasa, wet rice cultivation is dominant in combination with dry cultivation on *guda* fields, with shorter fallow periods than in Upper Kansa. The method of reducing the run-off of water, by bund-making, reduces the risk of crop failure, to a large extent, in comparison to dry cultivation and results in better yields. However, the low degree of irrigation (which mainly consists of regulating the water retention capacity by bund making), which remains dependent upon rainfall, is by no means a guarantee against crop failure.

The use of cattle and plough is prominent in both areas. However, more human labour is required for handwork in *toila* as opposed to wet rice cultivation. Shifting cultivation requires the felling of trees and the clearing of bush and the plough can only be used to a certain extent. However, the ownership of cattle for ploughing is necessary in both places and the lack of cattle is a critical factor for agricultural production; a household, with only one bullock, or none, faces difficulties in getting the necessary work done in time. The taboo for women to touch the plough, renders agricultural production for widows with no or only small sons difficult or impossible, if they are unable to pay male workers on their fields or get the cooperation of male relatives. Weeding is more time consuming on *toila* than on *bila* land, as the plough for weeding can only be used in submerged *bila* fields. Harvesting paddy on *toila* land also requires more labour than it does on *bila* land.

The following table shows land and labour productivity per hectare of paddy and *niger* cultivation under various conditions (*niger* converted in paddy):

Paddy swidden fields in Upper Kansa

A young Juang woman of Upper Kansa, harvesting paddy in a swidden field

Shifting cultivation in Upper Kansa

A Juang boy ploughing a 2nd year shifting cultivation field in Upper Kansa

Kodipasa village with surrounding cultivation

Bila paddy fields in Kodipasa

Amina Juang of Upper Kansa, winnowing paddy

Niziri Juang of Upper Kansa with bundles of paddy from swidden fields, to be prepared for storage

Paddy storage in Upper Kansa: Bino Juang with his daughter Suobali and Godadhara Juang

Table 16: Land and labour productivity per ha of paddy and *niger*

Type of cultivation	Harvest rate	Labour input per hectare in man-days*	Yield per hectare in kg paddy	Labour productivity in kg paddy per man-day (in kg rice in brackets)
1st year *toila niger*	1:10		228.5	4.569 (3.2)
	1:15	50 (71.5)	342.7	6.854 (4.8)
	1:20		457	9.139 (6.4)
2nd year *toila* paddy	1:6	168 (240)	494 (500)	2.94 (2.06)
Average productivity of			361.2	3.31 (2.32)
1st and 2nd *toila* land		109	418.4	3.84 (2.69)
calculated in paddy			475.5	4.36 (3.05)
Guda paddy	1:5	84 (120)	400	4.76 (3.33)
Guda niger	1:5	21 (30)	114.2	5.44 (3.81)
Average productivity of 1st and 2nd *guda* land calculated in paddy		52.5 (75)	257.1	5.1 (3.57)
Bila	1:10, 1:15	135 (193)	1000-1500	7.41-11 (5.18-7.7)
Badi	1:8	84 (120)	640	7.62 (5.33)

* Number of man-days in brackets: man-days labour under conditions of family labour

Labour productivity of *toila* paddy cultivation is lower than that of *toila niger* cultivation, and, from this point of view, it would be reasonable for the Juang to invest most of their labour in the cultivation of *niger*. However, the Juang of Upper Kansa, as with all Juang shifting cultivators, follow the strategy of mixed production; paddy mixed with other crops for their own consumption and *niger* for exchange. Although rice is their staple food, other crops from *toila* land supplement their diet, or replace paddy meals during the lean season. The risk of crop failure is minimized by annually cultivating two types of swidden fields. Moreover, *niger* can only be cultivated for one year on the same plot and it therefore makes more sense to cultivate paddy after *niger* on the same land. Much more bush or forest would have to be cleared every year, if the Juang were to follow the strategy of mainly producing *niger*. Moreover this would increase their dependency on outsiders (who barter *niger* for rice or buy it), and on the market: they would have to buy more rice to compensate for the decrease in their own paddy production.

Considering the average labour productivity of a two year cultivation cycle, despite low land productivity for *niger*, surprisingly, with regard to labour productivity, *guda* cultivation does reasonably well. The fact that most households in Upper Kansa use a similar amount of paddy seed for *guda* cultivation as for *toila* cultivation, indicates that they take into account the positive economic performance of *guda* cultivation. However, crops other than *niger* and paddy grow better on *toila* than on *guda* land. *Guda* cultivation only does well, if the fallow period is several years. If the fallow period is only about two years, as in Kodipasa, land productivity decreases considerably.

Yields per hectare as well as labour productivity[27] are highest on *bila* land. Occasionally, under good conditions they may be approximated or even exceeded by *toila niger* cultivation. But if one considers the average of a two year agricultural cycle of *toila* cultivation, yields and labour productivity are lower.

[27] Hunt (2000) in his analysis of traditional rice agriculture in Southeast Asia has shown in several cases that labour productivity is higher in wet rice production in comparison to with rice production in swiddens.

The history of the agricultural development of Kodipasa shows that over time *bila* cultivation, replaced shifting cultivation. The process of transition is analysed in more detail in chapter 3.2.1. Higher yields per hectare and higher labour productivity, combined with population growth and increasing land scarcity, are probably the reasons for this shift towards intensification of land use. Contrary to Boserup's model of declining labour productivity accompanying intensification of land use (Boserup 1998), a comparison between the various systems of cultivation in the case of the Juang, clearly shows that permanent and irrigated paddy cultivation is accompanied by increasing labour productivity. Although wet rice cultivation requires a higher input of labour than shifting cultivation, or short-fallow *guda* cultivation, the increase of land productivity is higher than the increase of labour: with relatively little increase in labour input per cultivated area, the output per man-day of labour increases considerably. Thus the transition from extensive to more intensive paddy cultivation in Kodipasa is not surprising. However, an initial input of labour in order to transform the land for permanent paddy cultivation is required for this shift. Once the land is totally cleared, levelled and terraced, the benefits of permanent paddy cultivation become apparent. The benefits are even greater when combined with the input of capital - if HYV and chemical fertiliser can be afforded.

Table 17: Comparison shifting cultivation – wet rice cultivation

	Average 1st and 2nd *toila* cultivation	Wet rice cultivation	Comparison of *toila* with wet rice cultivation: increase in %
Labour input per ha in man-days	109	135	+ 23.85%
Yield per ha in kg paddy	361.2	1000	+ 176.85%
	418.4	1250	+ 198.76%
	475.5	1500	+ 216.46%
Labour productivity in kg paddy per man-day	3.31	7.41	+ 123.87%
	3.84	9.21	+ 139.84%
	4.36	11.00	+ 152.29%

However, when there is a lack or scarcity of land for permanent paddy cultivation, adhering to the system of shifting cultivation is still a reasonable strategy for a household, which otherwise would be restricted in its capacity to produce paddy for subsistence. This may explain why efforts in the early 1980s to shift the forest dwellers of Upper Kansa down to Kodipasa partly failed and why, after several years, half of the villagers returned to the forest and resumed cultivation of *toila* land, due to the scarcity of *bila* land. Moreover, *toila* land allows for mixed cropping. Besides the main crops (oilseed and rice), various kinds of pulses, beans, millet and vegetables are grown: although they yield small amounts and do not replace paddy as the staple food, they supplement the diet of the Juang. These crops can also be cultivated on fertilised land behind the house (*badi* land) and on *guda* land, but *badi* land is restricted and yields on *guda* land are small. The peasants of Kodipasa therefore have to buy these or other additional foods at the market.

It is accepted that there are reasons other than economic ones which encourage people to take the decision to return to the forest. However, to label the Juang shifting cultivators as 'backward' and perceive them as pursuing an economically inefficient system of cultivation does not withstand closer examination.

Ownership structures regarding various types of land are less permanent and rigid among the villagers of Upper Kansa than among the villagers on the plain. In Upper Kansa, access to land is not the limiting factor for agricultural production; it is rather labour which limits the

size of the area cultivated each year: especially limited availability of female labour which is absorbed by wood selling activities, as will be shown later.

On the plain, almost all of the land is privately owned. Land scarcity here is definitely a limiting factor for agricultural production, although the practices of selling, renting and mortgaging imply some flexibility among the households. As will be shown, a combination of environmental, economic and social factors cause a dependency of most households on income activities other than farming their own fields; be it farm wage labour, other wage labour or, to a certain extent wood selling.

Table 18: kg seed per ha for various types of cultivation

Type of cultivation	Kg Seed per hectare	Man-days of labour input per kg seed
2nd year *toila* paddy	80	2.1
Guda paddy	80	1.3
Bila paddy	100	1.4
Toila niger	8	6.3
Guda niger	8	3.8

3.1.6 Other

3.1.6.1 Kitchen garden

A small patch just beside or behind the house is fenced for the cultivation of some vegetables, spices and tubers: eggplants (*Solanum melongena esculentum;* O=*baigan*), various cucumbers (*kengrat*), lady's fingers (*Abelmeschus esculentum),* various beans, *dumkari* (*Capsicum annum*: chilli), *sasang* (*Curcuma longa*; O=*haladi*; turmeric) and *saru* (*Colocasia esculenta*: coco-yams / Dioscorea sp.). A small amount of tobacco may also be cultivated, although this is mostly purchased at the market. However, such gardens are of a small size and the Juang do not give much importance to them. In Upper Kansa there are no fenced gardens at all.
Like *badi* land, kitchen gardens are privately owned.

3.1.6.2 Trees

Gardens may include fruit trees; *ale* (*Mangifera indica*; O = *amba*; mango), *anasam* (*Artocarpus heterophyllus*; O = *panasa*; jackfruit) banana and one or more *sazana* trees (*Moringa oleifera lam.*), whose leaves are used as greens.

Behind the house on *badi* land, jackfruit, mango and *mahul* trees may be found. Here and there such trees grow on *bila* and *guda* fields. They are privately owned.

3.1.7 Agricultural cycle

Agricultural work in the two villages begins with moderate labour input during March and April. It intensifies in the months of May and June and reaches a peak firstly, during July and August, due to extensive weeding, and secondly, towards the end of September, when harvesting of paddy begins. The main agricultural season, which focuses on paddy cultivation lasts about nine months from the middle of March until the middle of December, followed by a low season of about three months.

Many of the agricultural activities are closely linked to the time and amount of rainfall. Late rainfall, at the beginning of the monsoon, may postpone sowing. Conversely, late rain-

fall, at the end of the monsoon, may delay the start of the harvest. Some activities have to be carried out within a limited period of time: weeding at the right time and within a limited period is crucial for supporting good growth of the crops; weeds have to be uprooted before they deprive the seedlings of valuable nutrients. However, other activities, such as preparing the soil for cultivation, can be handled with more flexibility and be distributed over longer periods. Thus, even under certain ecological constraints imposed by nature and climate, the small farmers do have some flexibility in the organization of their activities.

When the farmers start preparing their land, how much land they cultivate and the amount of time they spend on other economic and/or non-economic activities, depends mainly upon the availability of land, labour and capital, together with their priorities and any other opportunities that they may have for obtaining income.

The tables on pages 78 and 79 illustrate the agricultural cycle of the two villages under study. Although the cycle is bound to the local climate, it differs from the agricultural cycle of other Juang villages with regard to shifting cultivation: villages under greater pressure to produce for their subsistence, i.e. villages with little or no easy access to a market where the villagers could sell wood, and with less opportunities for wage labour, do cultivate larger swidden plots. In these villages men start clearing operations on 1st year *toila* fields in February, i.e. about two months earlier then in villages such as Upper Kansa with access to nearby markets. Women also start their work on 2nd year *toila* fields earlier. Harvesting paddy carries on until December, if long-term paddy varieties are sown. Thus Juang of other villages work harder and for a longer period of the year on their swidden plots and cultivate larger areas. The critical bottleneck is probably caused by the necessity for weeding: this labour intensive work has to be done within a limited period and thus limits the area which may be cultivated.

Comparing the labour needed for the cultivation of various types of land, it is obvious that the combined cultivation of *bila* and *toila* land requires a high input of labour within the same time periods. In the two villages under study here, this combination does not exist. However, in the past, both shifting and *bila* cultivation were carried out in Kodipasa. Households, which combined these two techniques of cultivation either, had enough family labour, or the means to pay for additional labour. Wealthier households also tried to increase the amount of *bila* land and gave less importance to the cultivation of *toila* land.

In Upper Kansa the scarcity of family labour, rather than scarcity of land, limits the cultivation activities of the Juang households. Most households look for the assistance of members of other households, for the performance of certain agricultural activities. However, any labour received by non-household members, has to be either returned as labour, or reimbursed in kind, regardless of whether non-household members are kin or not. Cooperation in the form of rotating working groups is mainly used among the men for clearing, and the women for weeding. These forms of cooperation intensify labour input on a family's land over a restricted time period, when the group is working on the family's land. But family labour is withdrawn when the group moves to the land of the other group members' land. Based on the principle of balanced reciprocity somebody from the family has to contribute his share to the rotating working group.

With rather low rates of productivity per man-day with shifting cultivation, it does not pay to use wage labour, which costs 3 *pai*, i.e. 3 kg paddy (2.1 kg rice) plus a meal. If wage labour is used at all, it is the wealthier households that use and pay for it. Help from close relatives may be received, but not for free, although the compensation in kind is not regarded as payment; but rather as a gift. Thus, larger households with a favourable consumer-producer rate have advantages over smaller households, or households with an unfavourable consumer-producer rate.

However, opportunities to obtain an income by wage labour and / or wood selling, for the Juang, may also reduce the incentive to expand *toila* cultivation; thus even if a household could cultivate more *toila* with its own labour, it does not necessarily do so. Nineteen out of twenty households in Upper Kansa do follow a strategy of mixed economic activities, i.e. they combine shifting cultivation, wage labour and wood selling, although the importance of the various activities varies among the households.

In Kodipasa, the situation is quite different: cultivation of the households can be limited by the scarcity of land as well as labour. Unlike in Upper Kansa, access to land is restricted and almost all of the land is privately owned. A general analysis of the availability of land and its distribution among the households is provided in chapter 3.2.

With regard to the mobilisation of labour from outside the household, there is no difference among the various groups in Kodipasa: all households, be they Juang, Munda, Santal or Gouda obtain additional labour, only on the basis of strictly balanced reciprocity or as wage labour. Kinship relations beyond the household do not imply a free supply of labour for cultivation in any of the four groups. Thus, in all four groups, the household, as the central unit of production and consumption has to pay, mostly in kind, for extra-labour if confronted with a scarcity of family labour. To use wage labour is viable, if it is used on *bila* land and under conditions of good yields: the daily wage is between seven (3.5 kg / 2.45 kg rice) and twelve (6 kg /4.2 kg rice) *mano* paddy plus a meal for women, and up to fifteen (7.5 kg / 5.25 kg rice) *mano* paddy plus a meal for men, depending on the bargaining power and type of work. However, if yields are low, wage labour does not pay. While occasional wage labour for a few days is used by many households, regular wage labour or wage labour for several people can only be afforded by wealthier households, i.e. households with substantial additional sources of income and/or the capacity to produce a surplus which is high enough to pay wage labour with part of it.

3.1.8 Households and cultivation

With individual households being the central units of production and consumption in all four groups under consideration, it is necessary to have a closer look at them. An additional analysis, with regard to the development cycle, consumer/producer ratio and sexual division of labour for individual households and for the various groups, will follow in chapter 4.

The average household size of all the 136 households is rather small, with 5.24 persons per household. Of these households, only four consist of ten or more members (one Juang, two Munda and one Santal).The various household types of the 136 households under consideration in 1998-1999 are as follows:

Table 19: Household types of both villages

Household Type	Number	In %
Married couple with no children	4	2.9
Nuclear family	62	45.6
Sub-nuclear family with widow	14	10.3
Sub-nuclear family with widower	1	0.7
Joint family	43	31.6
Joint family with widowed son	2	1.5
Joint family with divorced son	1	0.7
Extended family	1	0.7
Widows single	3	2.2
Single (unmarried man)	1	0.7
Others	4	2.9
Total	**136**	**100.0**

Agricultural calendar for shifting cultivation

Fields	**Activities**											
1st year toila, rasi	Harvesting		Clearing	Clearing / burning	Burning cont.		Sowing & 1st weeding, if possible with plough		2nd weeding			Harvesting
2nd year toila short term paddy	Harvesting pulses (harada)			Preparing	Preparing / 1st weeding & sowing if possible with plough	Preparing / 1st weeding & sowing cont. if possible with plough	2nd weeding starts	2nd weeding cont. & watching	Watching / 2nd half of Sept.: harvesting paddy & watching	Harvesting paddy & watching	Harvesting pulses (rumha)	Harvesting pulses (birhi)
Guda paddy (short term varieties)				1st ploughing	2nd ploughing	3rd plough. & sowing / 4th plough.	1st weeding	1st weeding cont.	2nd half of Sept.: harvesting	Harvesting cont.		
Guda rasi	Harvesting							Plough. & sowing				Harvesting
Badi paddy (short term varieties)				1st plough.	2nd plough.	3rd plough. & sowing	3rd plough. & sowing cont. / weeding	Weeding	Harvesting	Harvesting		
Badi soriso	Harvesting								Ploughing and sowing	Ploughing and sowing cont.		Harvesting
Badi maize				Ploughing	Ploughing cont.	Sowing		Harvesting	Harvesting			
Month	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**
Season	Dry, cool nights	Dry, cool nights	Dry & hot days	Dry & hot days, slight rains	First rains	Monsoon	Monsoon	Monsoon	Monsoon	End of monsoon	Dry, cool nights	Dry, cool nights

: Women's work
: Men's work

Agricultural calendar for permanent paddy cultivation

Fields	**Activities**											
Bila paddy (long term varieties)		1st ploughing	1st ploughing cont.	1st ploughing cont.	2nd ploughing / 3rd ploughing & sowing / 4th ploughing& replanting & 1st weeding	3rd ploughing & sowing / 4th ploughing & replanting & 1st weeding cont.	4th ploughing & replanting & 2nd weeding	2nd weeding cont.	2nd weeding cont.		Harvesting	Harvesting cont.
Guda paddy (short term varieties)				1st ploughing	2nd ploughing	3rd ploughing & sowing / 4th plough-ing	1st weeding	1st weeding cont.	2nd half of Sept.: harvesting	Harvesting cont.		
Guda rasi	Harvesting							Ploughing & sowing				Harvesting
Badi paddy (short term varieties)				1st ploughing	2nd ploughing	3rd ploughing & sowing	3rd ploughing & sowing cont. / weeding	Weeding	Harvesting	Harvesting		
Badi soriso	Harvesting								Ploughing and sowing	Ploughing and sowing cont.		Harvesting
Badi maize				Ploughing	Ploughing cont.	Sowing		Harvesting	Harvesting			
Month	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**
	Dry, cool nights	Dry, cool nights	Dry & hot days	Dry & hot days, slight rains	First rains	Monsoon	Monsoon	Monsoon	Monsoon	End of monsoon	Dry, cool nights	Dry, cool nights

: Women's work
: Men's work

A nuclear family is defined here as a conjugal pair with their unmarried offspring. It is the dominant type of household in the two villages. If the sub-nuclear families, with a widow or widower as household head, were to be included under the category of nuclear family, the percentage would rise to 56.6%. There is a remarkably higher proportion of widows compared to widowers.

A joint family is, for the purpose of this study, defined as a family containing three generations, i.e. father or mother, or both, with one or more married children and their spouse and offspring. Unmarried sons and daughters may also be included. In twenty-four cases, there were no unmarried daughters or sons included in the family, i.e. they consisted only of parents, or one of them, one married child (mostly son) with spouse and offspring. Thus, a joint family, in many cases, may be defined as a nuclear family, plus one or two persons (father, mother) and they are not much bigger than nuclear families. In nineteen cases, unmarried sons and/or daughters were included. However, in only one case, the joint family included two married brothers. In fifteen cases, both parents were still alive, in twenty-seven cases the mother was widowed. In one case only the father was widowed. In three cases, relatives other than those mentioned above were included in the family. There were two families consisting of a widowed mother, a widowed son and a grandson. In one family a widowed father lived with an unmarried son, his divorced son and his grandchildren.

An extended family is a household of two or more married couples from the same generation (usually brothers) including their offspring. There was only one household of this type.

There were a few families composed of relatives, other than those mentioned so far. One family included a husband and wife, their married nephew and the children of this nephew. Another consisted of a widow and the son of her late co-wife. A third one was composed of a husband, his wife plus the unmarried brother of the husband. The fourth included a widow, her children and the brother of her late husband.There were no striking differences between the household structures of the two villages, as is shown below:

Table 20: Households in Kodipasa

Household Type	Number	In %
Married couple with no children	4	3.4
Nuclear family	53	45.7
Sub-nuclear family with widow	12	10.3
Sub-nuclear family with widower	1	0.9
Joint family	36	31.0
Joint family with widowed son	2	1.7
Joint family with divorced son	1	0.9
Extended family	1	0.9
Widows single	2	1.7
Single (unmarried man)	1	0.9
Others	3	2.6
Total	**116**	**100.0**

Table 21: Juang households in Upper Kansa

Household Type	Number	In %
Nuclear family	9	45
Sub-nuclear family with widow	2	10
Joint family	7	35
Widow single	1	5
Others (husband, wife, nephew, niece)	1	5
Total	**20**	**100**

In six out of the seven joint families in Upper Kansa, one of the parents was widowed. In one case the joint family consisted of a widowed mother, her married son with children, plus the mother's sister-in-law.

In all the groups, the nuclear family is the most common household type, followed by the joint family. There was only one extended family in 1999. In all the groups, there is a pattern of sons separating from their family, rather soon after marriage, and settling down with their own household. Parents will eventually live with one of their sons, his wife and their offspring. Married sons are given part of their inheritance and they become independent households. Daughters, valuable labour within the family, are married at an early age. This pattern keeps the families rather small.

A favourable consumer/producer ratio within a household can be reached if the separation of a married son from his father's family takes place at a later stage, and if the unmarried brothers and sisters are already at an age when they can contribute their labour towards the family income. However, it is common, that when the second brother marries, or even before, the family separates.

Under conditions of shifting cultivation, with no scarcity of land, as in Upper Kansa, one would expect households to pool their labour, for reasons of economic efficiency, by cooperating as joint or extended families. However, this is not case for Upper Kansa. The reasons for this are discussed in chapter 4.1. Although larger households would be more efficient from an economic point of view, other costs counteract against family models of larger units. However, there is a significant correlation between the number of household members and the amount of seed for the households in Upper Kansa ($r^2 = 0.505$), while this correlation is only 0.282 for the households in Kodipasa. Thus, the amount of land that the households in Upper Kansa cultivate depends to a certain degree on the size of the household. This is not the case, however, in Kodipasa, where the access to land is much more restricted than in Upper Kansa, as will be shown in following chapters.

3.2 Specific conditions of land and people

In this chapter, I will present data on the availability and quality of agricultural land in the two villages. Institutional aspects of land tenure, as well as data on land distribution among the various households, are also dealt with. These interlinked aspects of agricultural production in the two villages are not fix variables, but they are embedded in a context of a changing natural, socio-economic and political environment.

3.2.1 Changing patterns of land use in Kodipasa

Discussing the history of land use in Kodipasa with the older villagers, a shift in the past from shifting cultivation to permanent wet rice cultivation is recognizable. Village elders remember that there were once large areas with bushy or woody vegetation, which were cultivated by the method of swiddening. These have since been transformed into permanent paddy fields. The shortening of fallow periods and the gradual disappearance of forest and bush have taken place in the lower and more level areas. An increasing amount of land, predominantly *guda*, had been converted to permanent paddy cultivation by some of the Juang households, a process which continued with the arrival of Gouda families who started paddy cultivation themselves. Shifting cultivation on the hill slopes, an area unsuitable for *bila* cultivation, continued. *Guda* fields were to be found between lower areas suitable for *bila* cultivation and the hill slopes which were good for shifting cultivation.

This transition was accompanied by a socio-economic differentiation within the Juang society; several families appropriated the bulk of potential *bila* land, while others continued to cultivate the upper lands by shifting cultivation. The Juang from the poorer households were used as wage labour on the *bila* fields belonging to the richer Juang families. They received their salary in the form of paddy and daily meals. Crops from their own *toila* and *guda* fields supplemented their income. In those days neither the men nor the women worked as farm labourers outside the village and the sale of timber and firewood was not yet a main source of income. Girls and women did not visit the market at Keonjhar to sell firewood, while the men mainly sold timber, from time to time, to get some cash.

According to elder informants, approximately forty years ago, there were about five wealthy Juang families with large land holdings and several families with medium size land holdings, whereas the majority of the Juang households belonged to the poorer families who were employed as farm labourers by other households. The Juang families who did not belong to the local descent group, *barcha bok,* were all among the poorer households, whereas the richest households were all descendants from *barcha bok.*

According to McDougal (1963:39ff) such a process of transition to permanent rice cultivation in the Juang area had begun several decades before his research, albeit in a very slow manner and to a marginal extent only:

> "Throughout most of the Juang hills there is little available land for permanent irrigated rice cultivation. Nevertheless, within the last 40 years [since 1920: N.O.] some of the Hill Juang have adopted the cultivation of permanent, irrigated rice land, involving the construction of special terraced fields, called bilo, in streambeds or valley-bottoms. This type of cultivation is relatively rare. Some villages have no bilo lands; in most of the cases where bilo fields do exists, they are owned and cultivated by less than half the families of the village. These lands are extremely rare in the southern half of the region. The V-shaped valleys characteristic of this region provide only a small amount of level land for use by a village, although there are exceptions. The construction of terraced fields requires considerable expenditure of time and manpower; the surface of the plot must be levelled and an embankment built to retain water. If a narrow streambed is used, the plots are successively stepped from end to end, in a single row down its course - this is quite common. If the valley widens, lateral terracing may also be practiced. Due to the labour involved in construction, irrigated cultivation is frequently not practiced even where suitable land is available.
>
> This type of land represents a capital investment. Less labour is expended in its cultivation than on a swidden field yielding an equivalent crop; there are fewer basic tasks required in production. The yield is more uniform and predictable and less subject to the vagaries of nature. If the plots are properly maintained. Nevertheless, embankments are occasionlly washed out during the monsoon, resulting in partial or total crop loss. At the present time there is a tendency for some of the Juang to increase the extent of this type of cultivation where the land permits. They do not view irrigated cultivation as a means of replacing shifting cultivation, but rather as supplementing it. Only in exceptional cases would the development of available land resources permit a village to subsist exclusively by irrigated rice cultivation."

McDougal does not refer to any social transformation within the Juang community, which might be necessary to allow the transition to the more intensive *bila* cultivation. However, data from Kodipasa indicates that additional labour was required for households with *bila* fields; being provided by members of poorer households with little or no *bila* land. They were prepared to carry out such labour for other Juang, when production from other categories of land, especially swidden fields, diminished. Thus a process of socio-economic differentiation among Juang households was accentuated in a new way. This is not to say that there were no socio-economic differences among the Juang households, while they were mainly swidden cultivators; family size, sickness, individual characteristics, misfortune etc. allowed enough margin for differences. However, such differences were mitigated:

> "The periodic redistribution of land by the village, which allows any family to utilize as much as desired, and the consequent lack of individual land ownership or even perpetuity in its use, minimizes the possibility of stabilizing wealth difference" (McDougal, 1963:320).

In the 1960s, Bose (1967:93) refers to "some villages" which have adopted the system of wet cultivation and "are hence supposed to be rich in comparison with those who have not adopted this system". Comparing the economic situation of three Juang villages, in the central zone of the Keonjhar Hills, he concludes that the amount of available *bila* land is among other factors (population density and general availability of agricultural land) important for their economic status: the village with the largest area of *bila* land per consumer is the richest village (Raidiha: 0.7 acre/consumer, i.e. 0.2833 ha/consumer), the village with hardly any *bila* land is the poorest village (Kadalibadi; 0.052 acre/consumer, i.e. 0.021 ha per consumer), whereas the village with 0.33 acre (0.1335 ha/consumer) *bila* land (Hatisila) is considered as "semi-rich". Bose (1967:110) concludes from his study "that the economic status of the villages are [sic] mainly controlled by the scope and limitation of permanent rice fields".

> "'Rich' villages are those which produce sufficient food for the consumption of the villagers all the year round and provide scope for employing hired labour in their fields (...) These villages have more level and terraced land under permanent cultivation. Now-a-days there is a tendency of changing land for shifting cultivation into permanent cultivated land. The rich condition of the village is naturally related to permanent cultivation.
> 'Well-to-do' villages are those which are more or less self-sufficient in food. These villages have level and terraced fields under permanent cultivation and hill slopes under the jhum form of cultivation [i.e. shifting cultivation; N.O.]. They depend equally on both of these types of land. (...) There are some villages (...) which possess little or no plain or terraced fields under permanent agriculture, yet produce sufficient food from jhum lands on account of their relative abundance of good soil.
> 'Poor' villages are deficient in food. Villagers supplement their economy by working in rich villages as hired labourers and by collecting root crops from the jungles" (Bose 1961:173).

Self-sufficiency in this context does not mean that everything is produced for self-consumption; some crops are bartered in exchange for paddy.

Without going into detail about the differences among the households within each village, Bose points out that, as a whole, the inhabitants of the poorest village are not solely dependent upon their own land for income, but also work as hired labourers in rich villages. There is a migration of part of the inhabitants to some richer villages. The rate of consumption of food is lower than in other villages. Many inhabitants are in debt. In an attempt to improve their situation, the inhabitants of Kadalibadi changed their land-use system, by capturing some land to have more *bila* land and by diverting a small stream in order to solve the water problems related to this type of land (Bose 1967:121). The richest of the three villages is mentioned as a village to which the poor from Kadalibadi either migrate to, or work as hired labourers. Thus, Bose describes a situation between a poor and a rich Juang village, which seems to parallel the situation between a poor and rich household within the village of Kodipasa.

According to Patnaik and Bose (1976:61), in the 1970s, the interest in wet rice cultivation among the Juang was "a recent phenomenon" supplementing the produce from shifting cultivation, "the primary source of livelihood of the tribals". However, these authors indicate another reason why the Juang rarely cultivate *bila* land; a survey of the Juang area shows that land suitable for *bila* cultivation, in many cases, has been appropriated by immigrant cattle keepers who have developed an interest in farming and who have occupied land in the valley-basins and at the confluence of hill-streams. Such land is more fertile and suitable for wet cultivation than land at the top of the hills or on the slopes (ibid.). The building of dams across hill streams, in order to utilize water for irrigation purposes, the application of fertilizer and manure results in higher yields from such fields This, however requires a capital investment, which the Juang were not able or not interested mobilizing.

3.2.2 Demographic trends of the Juang

Various authors have considered population growth, to be a reason for changing land use patterns among the Juang. Reduction of the fallow period for swidden fields, as well as the transition to a more intensive agricultural production of wet land paddy cultivation, have been attributed to demographic growth. With the exception of the case study of Saradindu Bose (1967), relating to three Juang villages and the carrying capacity of their area, there are no studies regarding the general carrying capacity of the area inhabited by the Juang and migrants from other groups. Furthermore, Bose's study mainly considers the carrying capacity of land under shifting cultivation and not the general carrying capacity of land.

Taking into consideration available data, the growth of the Juang population, since the end of the 19th century is confirmed as a long-term trend. Between 1891 and 1981, the Juang population tripled in size. As migration into new areas is not a prominent feature of the Juang, the assumption of growing pressure on natural resources is supported by the demographic data. Immigration of peoples other than the Juang into their territories, added increased pressure on the natural resources. The population of the Juang, as estimated by the Census of India over a period of time is stated below.

Table 22: Juang population (Census of India)

Year	Total Juang population	Keonjhar District	Dhenkanal District	Other Districts
1857	n.a.	n.a.	1005	n.a.
1877	9659	4592	4120	947
1891	9173	n.a.	n.a.	n.a.
1901	11159	n.a.	n.a.	n.a.
1911	12823	n.a	n.a.	n.a.
1921	10454	n.a	n.a.	n.a.
1931	15024	7029	6760	1235
1941	17032	8424	n.a.	n.a.
1951	12559	n.a.	n.a.	n.a.
1961	21890	9768	11551	571
1971	24384	12372 (10881*)	12867	n.a.
1981	30875	15467	14573	835
1991	35665	n.a.	n.a.	n.a.
1996	n.a.	21146	n.a.	n.a.

Data for 1857 given by E.A. Samuells, quoted in (Rout 1969:2); census data from 1877 by W.W. Hunter, "A Statistical Account of Bengal", quoted in (Rout 1969:2); census data from 1891-1961 quoted in (Rout 1969:3); census data from 1971 quoted in (ODG 1986:81); census data from 1996/97, personal information ITDA Keonjhar 1999.

* This data relating to the Juang population in Keonjhar District in 1971 given by Patnaik & Bose (1976:59) is contradictory to the data of the ODG)

However, this data raise questions, which have not yet been answered. Although a trend of Juang population growth is clearly indicated, the data shows two significant population setbacks within the decades of 1911-1921 and 1941-1951, both followed by population growth. The decade 1951-1961 is characterised by an extraordinarily sharp rise in population (74.3% population growth within ten years; an annual growth of 7.43). None of these unusual demographic developments have been analysed or explained by any of the authors who have written about the Juang. The extreme variation, from time to time, may be partly explained by methodological problems and differences in data collection for the census, every ten years, which has resulted in rather unreliable data.

Early data may be unreliable due to restricted access to the areas, as well as sparse methodology of census data collection. However, looking at the general demographic trends in Keonjhar District, one finds parallel peaks and troughs, which probably help to explain the large variations. According to the ODG of Kendujhar (1986:57-58):

> "The growth [in Keonjhar District as a whole: N.O.] between the years 1911 and 1921 was very small, i.e. 14,794 and this slow growth was primarily due to widespread influenza and other epidemics. (...) The decade 1921-1931 was a period of quick recovery. The crop condition was satisfactory and the public health improved beyond expectation. (...). The decade 1931-1941 was a period of ups and downs but the population growth was not very much affected (...). The bumper crops of 1936 and 1937 were accompanied by smallpox and cholera. (...) There was also partial drought in the years 1938 and 1939. Thus the agricultural prosperity noticed earlier disappeared. (...) In the years 1941 to 1951, the harvests were moderate. There was deficient rainfall in 1942 and from 1947 to 1950. Smallpox and cholera broke out in the year 1947 in 89 villages causing many deaths. (...) The decade 1951-61 was more favourable than the previous decade because agriculture and industry made considerable progress. The whole district was covered by by Community Development Blocks. (...) The decade 1961-1971 has recorded the highest growth of population, i.e. 28.55% and has crossed the State average of 25.05 per cent. The reasons for the growth of population are generally the excess of births over deaths and the general improvement in public health and personal hygiene."

Thus, the decline of the Juang population, during various periods, can be explained by epidemics and droughts.

Data from the last three decades indicates a rather stable annual population growth of around 2.2%, slightly decreasing since the 1970s. This is consistent with the statement from an officer of the I.T.D.A. (Integrated Tribal Development Agency) according to whom the rate of population growth of the Juang is slightly decreasing (personal information I.T.D.A Keonjhar).

Table 23: Demographic trends of the Juang

Years	General growth of the Juang population in %	Annual rate of growth in %	Growth of the Juang population in Keonjhar in %	Annual rate of growth of the Juang population in Keonjhar in %
1877-1891	n.a.	-0.37	n.a.	n.a.
1891-1901	21.65	1.98	n.a.	n.a.
1901-1911	15.00	1.40	n.a.	n.a.
1911-1921	-18.47	-2.02	n.a.	n.a.
1921-1931	43.70	3.69	n.a.	n.a.
1931-1941	13.36	1.26	19.85	1.83
1941-1951	-26.26	-3.00	n.a.	n.a.
1951-1961	74.30	5.71	n.a.	n.a.
1961-1971	11.40	1.08	26.66	2.40
1971-1981	26.62	2.39	25.02	2.26
1981-1996	n.a.	n.a.	36.70	2.11

Sources: Census of India 1971 in ODG 1986:83 / I.T.D.A. / Juang Handbook for Development 1993:6 / Juang Development Agency

3.2.2.1 Kodipasa population

Unfortunately, census data on the population of the two villages under study here equally shows considerable inconsistencies. Furthermore, in the census of these villages there is no distinction made between the Juang and other Scheduled Tribes, such as Munda and Santal.

There are several confusing statistical facts regarding the data about Kodipasa. There is a decrease in population between 1971 and 1981, which contradicts the assumption of a growing population. However, as the land settlement process was going on in that area during this

decade, it may be that the village boundaries were changed and that hamlets previously belonging to the village were reallocated to a neighbouring administrative unit.

Table 24: Kodipasa population

	1961	1971	1981	1991*	1998**
Total population	227	378	351	537 (608)	607
Male	n.a.	188	172	287 (355)	294
Female	n.a.	190	179	250 (253)	313
ST (Scheduled Tribes)	n.a.	353	310	471 (519)	515
ST male	n.a.	175	150	254 (304)	245
ST female	n.a.	178	160	217 (215)	270
SC (Scheduled Castes)	n.a.	0	0	0 (12)	0
GC (General Castes)	n.a.	25	41	66 (77)	92
General caste male	n.a.	13	22	33 (n.a.)	49
General caste female	n.a.	12	19	33 (n.a.)	43
Total Households	n.a.	74	82	108 (105)	116
Households ST	n.a.	n.a.	n.a.	n.a.	100
Households GC	n.a.	n.a.	n.a.	n.a.	16

1961-1991: official census data
* Official data, particularly from the 1991 census (numbers given in brackets), are highly debatable; an extraordinary population growth of 73% within a decade, a male-female ratio of 1.4; twelve members of Scheduled Castes not existing earlier and later. After re-examination, the population data for Kodipasa registered at Banspal Block alternative figures have been found, which seem to be more reliable than the official census data of 1991.
** Data from own census 1998

A reason for the unusual sex ratio in 1991 of 1:1.17 (female to male, calculated with the more reliable numbers) contradicting other data, which shows a higher female population, could be the inclusion of the school in Kodipasa (with a high percentage of boys) into the census.
The considerable population increase between 1981-1991 probably results from including the inhabitants of Lower Kansa into the Census of Kodipasa.

The population of the General Caste shows a steady increase since 1971 and within three decades it has more than tripled.

Despite all the confusion, there is trend of population growth in the village, although population growth of the Juang, in comparison to the rest of the population, cannot be calculated from this data. However, the assumption that the process of intensification of agriculture in this case, is linked to population pressure, is supported by the demographic data.

3.2.2.2 Kansa population

Official census data for Kansa, in fact applies to three Kansa villages, which have separated in the past, into Jirpani Kansa, Bindridi Kansa (Upper Kansa) and Handiduha Kansa. The population of Koratadihi Kansa (Lower Kansa), which was integrated into Kodipasa village, as a Juang hamlet at the beginning of the 1980s, is included in the population data of Kodipasa village. Data from my own census in 1998/99 refers to Upper Kansa and Lower Kansa only.

Thus, the irregular shifts in the population of Kansa are most probably to be explained by the resettlement of part of its inhabitants to the village of Kodipasa, towards the end of the 1970s and at the beginning of the 1980s. For that reason, hardly any population growth is discernible in the various villages officially named Kansa. Without resettlement, it is assumed here that the Juang population growth is similar to that of Kodipasa. However, population growth in Kansa village, in general, is smaller during the same period, as there is no immigration of General Caste people into this hilly area.

Table 25: Kansa population

	1961	1971	1981	1991	1996*	1998 Upper Kansa (Bindridi Kansa)	1998 Lower Kansa (Koratadihi Kansa)
Total population	232	283	254	238	241	105	75
Male	?	133	125	122	120	48	40
Female	?	150	129	116	121	57	35
Households	?	63	60	54	58	20	14
Average size of household		4.49	4.23	4.41	4.15	5.25	5.35

1961-1991: official census data
* Data from TDA (Tribal Development Agency)
** Own census data 1998

As the population in 1996 is almost the same as 35 years ago in 1961, this does not indicate a growing scarcity of natural resources due to demographic factors. However, the fact that *bila* land is not cultivated in this area cannot be solely explained by an abundance of forest area, due to a lower population density – there is no *bila* land available due to topographic reasons. Relatively short fallow periods of swidden land, on the other hand, cannot necessarily be explained by a shortage of land fit for this type of cultivation, due to population growth– it is possible that short fallow periods are maintained because they require less labour for clearing secondary forests. In addition, the opportunity of obtaining income from the sale of wood is an incentive to reduce the labour input in shifting cultivation.

3.2.3 Official land categories

The land settlement in the two villages under study, as in other villages of the Juang and Bhuiya pirhs, inhabited mainly by the Juang and Bhuiya, involved two different stages and purposes. The first stage was to survey and settle the hitherto unsurveyed tribal area of the Juang and Bhuiya pirhs. Before this settlement, nobody had land titles (*patta*) or any document for any type of land. The survey aimed at determining the area of each *ryot* (landowner), to locate it and to confer title over his holdings (Patnaik and Bose 1976:74-82). On the basis of the quality of land, revenue was fixed. All other (non-private) land had to be classified, according to the official land classification system.

The second stage was linked to development purposes in the 1980s, and included redistribution of land to landless and poor households.

Previous systems of revenue and taxation in the tribal areas of the Princely State of Keonjhar were not directly based upon individual assessment of landed property. Tribal villages were taxed according to their size, i.e. number of houses, and according to the numbers of ploughs. Additional tributes and services had to be offered by the tribal villagers or their officials during certain ceremonies or on various occasions (see also chapter 5.5.1).

The *pradhans* (headmen of the villages) were responsible for collecting from their villagers what was demanded by the revenue officers of the princely state from the village as a whole. Such rates were fixed from time to time and consisted of cash and kind. However, there has been a difference in the manner of revenue collection between the Bhuiya and Juang villages since 1931-32. At that time, in Bhuiya villages, a revenue register, called an *Aekapadia,* was introduced, containing the names of the *ryots* and the amount of revenue that each one had to pay to the Government. This register was kept by the village headman (*pradhan*). This system was not introduced in Juang villages; here revenue and tax continued to be de-

manded for the village as a whole and it was up to the village *pradhan* to collect it from the various villagers to meet the demands of the State (Patnaik and Bose 1976:75).

It was only in 1970, that the process of land survey and settlement – with the aim of registering landholdings – began in the Juang area. The Revenue Department published the details of the rules to be followed for this purpose, in their notification No. 58.54, dated 23.10.1970 (Patnaik and Bose 1976:76): Without the existence of any revenue register (*Aekapadia)* in the Juang villages, the surveyors were instructed to gain information about the land of those villagers that paid revenue, from the former *Sardar* and *Pradhan,* and "to find out what lands they possess" (ibid.) at the time of the survey and settlement. "Based on these proofs the lands which they possess as cultivators and residents shall be recorded as *ryoti* in their names." (ibid.) However, as has been shown, the traditional system of land rights and land use in the area of the Juang, renders difficult any clear cut property rights for certain types of cultivated land. Swidden plots, as well as *guda* fields, are left fallow for several years and are periodically redistributed. It is mainly *badi* and *bila* land, which is the long-term private property of individual households, in a narrow sense. To prove that land has been in the undisputed possession of a Juang is not easy in such a context. Furthermore s*ardars* and *pradhans,* as informants for the surveyors, could take advantage of their position and give information about land to benefit themselves. According to N. Patnaik, an additional difficulty was, that in many villages the post of *pradhan* had become extinct, and in other villages men of younger generations acting as *pradhan* did not have adequate knowledge with which to inform the surveyors.

Regarding the practice of shifting cultivation, the land settlement instructions were not very clear. It had been acknowledged, that shifting cultivation was "an old age practice followed by the Juang" and "the primary source of livelihood of the Juang" (in Patnaik 1976: 78). To abolish it completely, despite the assumed negative consequences of deforestation and erosion, therefore was not perceived to be a proper solution. The conclusion based on this observation is surprising however; that it is not necessary to survey and prepare records about lands under shifting cultivation. The top portions of hills and mountains, where shifting cultivation was practised, should be reserved as 'village forests' and their bases as grazing lands, for "proper utilization of mountains belonging to different villages" (ibid.).
Therefore, land under shifting cultivation came to be recorded as village forest (*grama jungle*) and grazing area under *Rakhit Khata* and/or as jungle of *Abad Jagya Anabadi* (cultivable waste) or *Abad Ajagya Anabadi* (non-cultivable waste land).

While the documentation and settling of existing land use and land rights was the duty of the land settlement officer, this process was later accompanied by a development scheme by the Tribal Development Agency (T.D.A.) with the aim of giving land to landless families in the villages. This partly led to conflict between the then settlement officer and the T.D.A. According to the settlement officer (personal conversation in 1999), there was no legal background to expropriate Juang families who had cultivated land before the settlement and to give it to others. By law, the Government could distribute land to the so-called "landless people", i.e. to households possessing less than one standard acre[28] land and with an annual income below a certain ceiling. However, the Government could only give land under the category of "cultivable waste land" (*Abad Jagya Anabadi*) to the landless; thus the redistribution from land previously cultivated by the Juang to other Juang, Munda, Santal and Gouda was

[28] Standard acre means the unit of measurement of land equivalent to:
1 acre of class I land (0.4047 ha): irrigated land on which two or more crops can be grown in a year;
1.5 acre of class II land (0.60705 ha): irrigated land on which not more than one crop can be grown in a year;
3 acres of class III land (1.2141 ha): land, other than irrigated land, on which paddy can be grown in a year;
4.5 acres of class IV land (1.82115 ha): any other land.

considered illegal by the then settlement officer. Thus during the second phase of land settlement, in the late 1970s, land was not only settled, but partly redistributed also to the new settlers, i.e. to the Gouda, Munda and Santal.

In the same period, the village of Upper Kansa was relocated from the hill down to the plain. The inhabitants of the newly created Lower Kansa integrated into Kodipasa village and were given land by the Government, which had partly been taken from the previous owners of Kodipasa. In this process, some of the old established Juang families in Kodipasa, who had larger areas of land, lost part of their traditionally owned land. However, they were still given land titles (*patta*) for considerably larger areas than other families. In all probability, good connections with the administrative machinery handling the settlement were helpful in securing legal land rights; it was the *sarpanch* (head of *panchayat*) of that time who got more than five hectares of land; part of it of best quality. His only son today is the richest Juang in Kodipasa and he not only inherited the land of his father, but also the office of the *sarpanch* for several years.

However, part of the distributed land was also "reclaimed" by the Government through the Department of Soil Conservation; so-called wasteland was converted into *bila* land. The work to convert wasteland into agricultural land was done by machines and with wage labourers from other villages paid for by the government.

According to the then settlement officer of the Juang and Bhuiya[29], there were no maps from the time of the princely-state, and the boundaries of Kodipasa and Kansa were ascertained with the help of the villagers, who explained the running of the boundaries of their village territory. The following data on the two villages under study are given to show the total size of the area, its composition according to official land categories and the size of the various types of land at the end of the settlement in 1981. This data also includes institutional aspects of ownership.

The Revenue Department operates with various categories of land in order to administer and tax land. "Private Land" is legally and officially owned by individuals who are in possession of *patta* documents for their land, i.e. whose land is registered in the land register at the *Tahsildar* office. Such land may be agricultural land or homestead. All other land within the village territory comes under the category of "Government Land", which is again subdivided into the following categories:

- *Rakhit Khata* is village area covered by canals, roads, ponds, grazing areas and land for development purposes. Such land is "leasable" but not sellable by the government.
- *Sarbha Sadharana* is land for common public use, such as the village cremation ground and places of entertainment.
- *Abad Jagya Anabadi* is "cultivable waste land", i.e. land which may be cultivated after its quality has been improved by various measures. This category may also include degraded forest area with a certain potential to improve its condition, although such forest, by law, cannot be converted into agricultural land.
- *Abad Ajagya Anabadi* refers to land, which is classified as "non-cultivable waste land" and is therefore judged as not appropriate for cultivation. It includes hilly forest areas.

Not included in the area of a revenue village is forest that comes under the category of "Reserved Forest". However, up until now there has been no Reserved Forest in the area of the two villages under consideration.

The administration of any forest area within the village territory is shared between the Forest Department and the Revenue Department. Whereas land covered by forest vegetation

[29] I collected this information in a personal conversation with Mr. Barik, the then settlement officer of this area.

comes under the control of the Revenue Department, forest vegetation itself is regulated by the Forest Department. Any official conversion of once classified forest area into agricultural farming area has to be approved by the Government.

The following data for the two villages under study was collected at the Revenue Inspector Office (R.I. Office) in Suakati. It illustrates the situation after the finalising of the land settlement, which commenced in 1972 and was concluded in 1981. All villages registered at the R.I. Office, Suakati, are classified as "class III" villages, i.e. they belong to so-called remote and less developed villages, with lower rent rates than "class I" and "class II" villages.

3.2.3.1 Kodipasa Revenue Village

Government Land	281.8695 ha	(2.819 km^2)
Private Land	97.7385 ha	(0.977 km^2)
Total area	**379.6080 ha**	**(3.796 km^2)**

Government Land includes the following categories:

Rakhit Khata	**59.5120 ha**
thereof Village Forest (Grama Jungle)	28.5520 ha
thereof Grazing area	4.1600 ha

"Jungle": non-cultivable land consisting of trees, bushes, creepers and bamboo.
The category of Rakhit Khata also includes canals, roads, ponds and land for development purposes which are not specified in detail here; such land is "leasable", but not sellable by the government.

Sarba Sadharana	**2.6650 ha**

This category refers to government land for common public use such as like road, cremation grounds, and places of entertainment.

Abad Jagya Anabadi (cultivable waste land)	**211.8075 ha**	**(2.118 km^2)**
1988 under encroachment, according to I.T.D.A.	20.396 ha	
thereof "Jungle"	113.376 ha	

The category of Abad Jagya Anabadi refers to wasteland which may be improved in quality by taking measures to reclaim it for cultivation or other purposes. Degraded forest area with a certain potential to improve its condition is included in this category; however, conversion into farmland is neither intended by the government nor permitted by law.

Abad Ajagya Anabadi (non-cultivable wasteland)	**7.8850 ha**	**(0.079 km^2)**

The category of Abad Ajagya Anabadi refers to non-reclaimable wasteland, i.e. it is either uneconomical to reclaim such land or not possible at all. It includes the Aradai river, small rivers and stony areas.

Population density in Kodipasa:	**Population density in Keonjhar District:**
1981: 92.5 inhabitants / km^2	1961: 90 inhabitants / km^2
1991: 142.5 inhabitants / km^2	1971:116 inhabitants / km^2
1998: 160.0 inhabitants / km^2	1981:136 inhabitants / km^2
	1991:161 inhabitants / km^2
	2001:190 inhabitants / km^2

On average, less than one hectare of private land is available for cultivation per household: private land in this village is divided among the 102 households with landed property. In 1998 this results in an average area of only 0.9582 ha per household. If landless households are included, the average area goes down to 0.8425 ha per household.

Divided by the 82 households in 1981, 1.1919 hectares of private land per household were available at this time.

More than 50% of so-called "cultivable waste land" are classified as "jungle" and as such are not to be reclaimed for agricultural purposes. If forest and encroached areas are deducted, only 78 ha "cultivable waste land" is theoretically available. Since the end of the land settlement in 1982, it is likely that the amount of encroached land has increased further and available wasteland has significantly reduced. Land scarcity and land distribution among households is discussed in more detail below.

141.928 ha is classified as forest area, i.e. 37.38% of the total area. This figure, however, does not provide accurate information about the qualitative state of this forest area. Parts of the forest registered during the land settlement more than twenty years ago, have degraded or even disappeared in the meantime. The decrease in forest area is commonly acknowledged by the local people, when discussing the history of the landscape.

3.2.3.2 Kansa Revenue Village

Kansa (consisting of three villages: Upper Kansa, Jirpani Kansa and Handiduha Kansa) as per the settlement, finalised in 1981, includes the following areas:

Government Land	**779.4800 ha**	**(7.795 km^2)**
Private Land	22.3850 ha	(0.224 km^2)
Total area	801.8650 ha	(8.019 km^2)

Government Land includes the following categories:

Rakhit Kata	**27.0400 ha**
thereof Grazing Area	6.4000 ha
thereof Village Forest (Grama Jungle)	20.4000 ha

Sarbasadharana	**0.7550 ha**

Abad Jagya Anabadi (cultivable waste land)	**0.8100 ha**	**(0.008 km^2)**

Abad Ajagya Anabadi (non-cultivable waste land)	**750.8750 ha**	**(7.509 km^2)**
thereof "hilly area" (Parbat: larger hills with forest)	740.1340 ha	
thereof "stony area" (Patro Boni)	10.7410 ha	

"Parbat": larger hills covered with forest (Parbat), smaller hills covered with forest (Pahar) and rocky hills (with or without tree cover) are classified as "Parbat". This type of area is subdivided into Parbat I (the majority of the trees have a girth which is greater than one foot) and Parbat II (the majority of the trees have a girth of less than one foot) (1 foot = 30.48 cm). In the Tahsildar documents for Kansa, it is not mentioned whether the area classified as "Parbat" relates to Parbat I or II. However, data mentioned in the Kendujhar Working Plan, along with my own observations, confirms that the forest in this area mostly consists of "pole crops", poles having an average size between 30 and 60 cm girth or less.

"Patro Boni": flat stones, stony area, small stony hills or rock formations come under Patro Boni.

Podu land (swiddens) is not registered as private land. Thus the shifting cultivators have no legal backing for their agricultural practice and are completely dependent upon the forest settlement officers, who may or may not exclude podu land from protected/reserved forest.
Land classified as forest (*grama jungle*, *parbat*), within the village area, is under the joint control of the Revenue and Forest Departments. The territory belongs to the Revenue Department, the vegetation to the Forest Department. Rights of use of such forest by the villagers are at the discretion of the Forest Department. It will be discussed later, how far the Forest Department implements its policies, rules and regulations in the forest areas of the villages in the research area.

Population density in Kansa:	**Population Density in Keonjhar District:**
1981: 31.67 inhabitants / km^2 (60 households)	1961: 90 inhabitants / km^2
1991: 29.67 inhabitants / km^2 (54 households)	1971: 116 inhabitants / km^2
1996: 30.05 inhabitants / km^2	1981: 136 inhabitants / km^2
	1991: 161 inhabitants / km^2
	2001: 190 inhabitants / km^2

Population density is much less in Kansa than in Kodipasa, and than the average population density for the district as a whole. Also, the population has been relatively stable for the last twenty years.

In 1981, the 60 households in Kansa, owned on average only 0.373 ha of private land. In 1991, among 54 households, this figure rose slightly to 0.4145 ha., which was still less than half of the average land property per household in Kodipasa.

93.64% of the total area of Kansa has been classified as non-cultivable wasteland, and less than one hectare is classified as cultivable wasteland. Almost all of the land is hilly forest area. However, because the land used for shifting cultivation is not registered as private land, the above figures do not tell us much about the de facto use of land belonging to the villagers that live in the forest.

3.2.4 Private agricultural land

Let us now consider the most important official land category, for the purpose of an analysis of the importance of farming, in the area under study. This is agricultural land considered as private property by the government.

During the settlement of the area in the Juang and Bhuiya pirhs, settlement officers used various categories by which to classify cultivable land. Such categories were based on criteria of the number of yields per year, the quality of the land and the type of crops cultivated. Based on such classifications land revenue was levied. The rates of rent per hectare of these categories, were therefore an indication as to the value of the land (see table 26 below). Land categories, as documented in the land registry office, give some indication of the quality and size of the land, when the settlement took place.

Based on the following analysis of official data, two statements can be made: firstly, the bulk of the land registered as private agricultural land is of rather low productivity, partly explaining and confirming the problem of local food scarcity from local agricultural production. Secondly, it is not of a sufficient enough size to feed the population. If one takes the actual number of consumers in 1999, and multiplies it by the size of agricultural land necessary to feed one consumer for one year (including seed), this indicates the scarcity of land and thus rice in the villages.

The categories of agricultural land and rates of rent per hectare, in the land registers, for the two villages are as follows:

Table 26: Agricultural land categories and rates of rent per ha

Sarada I	4.00 Rs
Sarada II	3.50 Rs
Sarada III	2.50 Rs
Taila	2.50 Rs
Bajefasal	4.50 Rs
Biali	2.50 Rs

(Actually, no land rent is collected; the above numbers are given as an indicators of the value of the land.)

Sarada: this refers to single crop paddy fields with one annual paddy harvest. This category is subdivided into three classes, *Sarada I*, *Sarada II* and *Sarada III*. *Sarada I* is low land with good water conditions that enable the growth of long-term paddy, which is harvested during the month of December. *Sarada II* and *Sarada III* fields are of lower productivity than *Sarada I* fields, due to their location on medium and higher levels of the terrain and therefore they have a higher run-off of water. Midterm varieties of paddy are cultivated on these fields, which are harvested in November.

The size and distribution of these three land types, for the two villages, are as follows:

Sarada I in Kodipasa	3.76 ha
Sarada I in Kansa*	5.42 ha
Sarada I in Upper Kansa	0 ha

(* All of this land lies in Jirpani Kansa, there is no land classified as Sarada I in Upper Kansa.)

Sarada II in Kodipasa	7.4195 ha
Sarada II in Kansa	1.6850 ha
Sarada II in Upper Kansa	0 ha

Sarada III in Kodipasa	66.6274 ha
Sarada III in Kansa	1.0800 ha
Sarada III in Upper Kansa	0 ha

Total *Sarada* land in Kodipasa	77.8069 ha
Total *Sarada* land in Kansa	8.1850 ha
Total *Sarada* land in Upper Kansa	0 ha

The bulk of the agricultural land in Kodipasa (81.5%) is classified by the settlement records as *Sarada* land. However, more than 85% of *Sarada* land, at medium and higher levels of the terrain, belongs to the lowest quality category. 9.5% of the land comes under the category of second class *Sarada* land, and only 4.8% comes under first class *Sarada* land. Thus, the majority of local *Sarada* land is characterised by low productivity.

There is no *Sarada* land of any category available in Upper Kansa.

Yield data (in kg paddy per hectare) for non-irrigated paddy cultivation in Kodipasa *Gram Panchayat* for the year 1997/98 (considered as a good year) is as follows:

Lowland paddy, local varieties:	850 kg	595 kg rice
Lowland paddy, HYV[30]	1500 kg	1050 kg rice
Medium land paddy, local varieties	800 kg	560 kg rice
Medium land, HYV	1200 kg	840 kg rice
Upland paddy, local varieties	700 kg	490 kg rice
Upland paddy, HYV	1000 kg	700 kg rice

(Source: Junior Agriculture Officer, Suakati, Banspal)

Data on the area of Kodipasa *Gram Panchayat*, as per categories of agricultural land situation, in hectares, clearly indicates that the majority of agricultural land is high land with lower productivity:

High land:	309.4 ha
Medium land	42.2 ha
Low land	28.4 ha

Based on this data, it is assumed that there are yields of between 595 and 700 kg rice per hectare, from the majority of cultivable land in the area under study, for further general calculations. 700 kg rice may be produced with HYV on *Sarada III* land. This figure is also the average yield for all the types of land mentioned above. Rice yields per hectare, on all other types of land are lower than the figures quoted.

Assuming a good harvest of 595 kg rice per hectare, 0.4 ha yields 238 kg rice per year. Divided by 365 days, this gives 650 gr. rice, a sufficient quantity for an adult consumer. This calculation does not include seed. Taking a harvest rate of 1:10, 23.8 kg rice (approx. 33 kg paddy) per consumer has to be produced additionally as seed. Thus, an area producing 262 kg rice is necessary to feed one consumer for one year. In a good agricultural year; this requires an area of 0.4386 ha per consumer under local conditions. Therefore, for the 545 consumers[31] in 1998/99, an agricultural area of 239 ha would be required.

As some farmers apply chemical fertilizers and use HYV, a more "optimistic" yield of 700 kg rice per hectare may also be assumed: this is the yield calculated using the locally given harvest rate of 1:10 in a good year. With 100 kg paddy seeds, one hectare of *bila* land may be culivated, yielding 1000 kg paddy, i.e. 700 kg rice. Under this condition, only 0.3728 ha per consumer unit would be necessary. Thus, for 545 consumers an agricultural area of 203.176 ha would be required.

Biali: this refers to single crop paddy fields with one annual harvest of short term paddy which is harvested before the middle of October. If such land is cultivated after the paddy harvest, with a second crop other than paddy, it is called *Biali do Fasal*. *Biali* land refers to unbounded medium or upland paddy fields.

Kodipasa	2.915 ha
Kansa	0.560 ha
Upper Kansa	0 ha

[30] High Yielding Variety

[31] The number of the total population under study and the number of consumers are not identical: a person aged twelve and above is considered in this study as one consumer unit, whereas a person aged between three and eleven is considered as half a consumer unit. See "definition of variables" in the appendix.

Taila: this refers to land, which is cleared from bush jungle in order to cultivate short-term hill paddy, oil seed, pulses, millets etc. *Taila* fields are unbounded medium or upland fields. Most of the swiddens in both villages have not been legally acknowledged as private *taila* land. It is assumed that *taila* land ascribed to specific households was land with short fallow periods, cultivated by the same households in the years prior to and during settlement.

Kodipasa:	5.386 ha
Kansa:	7.095 ha
(Upper Kansa)	2.255 ha

Bajefasal: this refers to dry land on which crops other than paddy can be grown (maize, millet, oilseed, pulses, or vegetables (potatoes, tomatoes, cucumbers, cabbages, egg-plants). Using the local land categorisation, this corresponds to *badi* land, which is, however, partly cultivated with paddy (see village section map).

Kansa:	6.035 ha
(Upper Kansa)	3.7 ha
Kodipasa:	9.345 ha

However, the terminology used by the local farmers in the villages does not correspond with all of these categories of the official land settlement. Land locally classified as *bila* land mainly comes under the category of *Sarada*. The term *bila* is probably derived from the word *bera*; an old term used to describe low-lying fields with sufficient moisture (ODG 1986: 254) in contrast to *goda* land, an old term in Orissa for so-called "uplands" (ibid.).

In the land settlement of Keonjhar in 1914/15 upland or *goda* land was subdivided into three classes:

> "The first class goda land comprised (...) homestead lands which were heavily manured every year and produced crops like maize, mustard and vegetables. Second class *Goda* were ordinary uplands situated at a distance from the homestead lands and were seldom manured, and grew *goda Dhan* (Biali; autumn rice sown in May-June and harvested in August-September), *Rasi* [niger; N.O.] or Surguja. These lands were not capable of bearing crops every year and were therefore, cultivated normally every alternate year. The third class *Goda* lands were generally high and dry for their situation near the foot of the hills. The soil was mostly rocky and covered with gravel and small pieces of stones and therefore produced poor crops once or twice in in two or three years and sometimes four years".

The two local categories of *badi* and *guda* in the Juang area are included in the general use of the term *goda*. However, this term no longer appeared as a land category in the settlement of 1971-1981, although the Juang and other local farmers still use it.

The term *taila* refers to the practice of clearing "bush jungle", without further information as to the length of the fallow period, or regrowth, at all. However, it clearly is related to the term *toila* used locally by the Juang. Although there is an official land category for swidden fields, very little land has been classified as *taila* in the two villages.

Due to the different terminology used for the classification of agricultural land during the settlement of 1972-1981, compared with local terminology, the following observations have to be considered:

- Land coming under the category of *Sarada III*, may be cultivated as local *guda* land; if it is of poor quality and in an unfavourable location. Thus, part of the Sarada III land in fact is *guda* land.
- Land coming under the official category of *Taila* may equally be of varying quality: keeping *guda* land fallow for more than four years results in "bushy" vegetation, which is

cleared and burnt, before becoming "forest". Thus, what is recorded as *Taila* may be considered to be *guda*, by the local people.
- The category of *Biali* refers to land considered by local farmers as *guda* land (unbounded medium or upland field).
- The category of *Bajefasal* may include land, which is considered by local farmers as *badi* land.

3.2.4.1 Local scarcity of agricultural land

The availability of land for agricultural production, and the access to it, are the main factors by which an understanding can be gained about the situation and economic strategies of the villagers, not only with regard to agricultural production, but also with regard to other economic opportunities such as wood selling and wage labour. However, the availability of agricultural land has several dimensions: its institutional availability is not necessarily congruent with its physical availability, as is shown in the following:

Table 27: Agricultural land in both villages as per the settlement records

	Private land ha	**Agricultural land ha**	***Sarada I***	***Sarada II***	***Sarada III***	***Taila***	***Bajefasal***	***Biali***
Kodipasa	97.7385	95.4529	3.9%	7.77%	69.8%	5.64%	9.79%	3.05%
Upper Kansa	-*	5.9550	0.0%	0.0%	0.0%	37.87%	62.13%	0%
Kansa	22.3850	21.8750	24.77%	7.7%	4.94%	32.43%	27.58%	2.56%

* Data not available.

The total nominal agricultural land in Kodipasa and Upper Kansa, as per the settlement records, is an area of 101.4079 ha. Taking the population of 1999, this is an average area of 0.7456 ha per household and 0.1861 ha per consumer. This is insufficient to produce enough rice for own consumption, as will be shown below, and the nominal area is too small to feed the local population.

The area required to produce enough rice to feed one consumer depends upon the consumption rate per consumer, as well as on the productivity of agricultural land. Both variables are not fixed. The daily consumption rate of rice, per consumer, varies between households, per season and per age. Productivity is dependent upon the quality of land, climate, cultivation techniques and labour input. The following calculations are based on various assumptions of consumption rates and productivity.

A rather optimistic assumption of 0.65 kg rice daily, per consumer unit, will be taken as the basis for calculation in the first case. In the second case, an average consumption of 0.54 kg rice will be calculated and in the third case a calculation of a poor daily consumption of 0.45 kg rice per day will be used.[32]

The assumption of 700 kg rice per hectare in the research area is the average yield for various types of soil quality and rice varieties. However, this is a rather optimistic assumption, as

[32] The average consumption, as per the census of 1998/99 was 0.54 kg rice per consumer. The question about the daily consumption of rice was, whenever possible, directed to the women of a household, because they are responsible for cooking. Answers by them were usually given in the measurement of a local brass vessel, called *mano;* this corresponds to approx. 0.65 kg rice. Daily consumption varies between 0.35 to 0.74 kg rice per adult consumer. This partly reflects the difference of the economic status of the households. Rice consumption, moreover, varies seasonally according to the availability of other food, which adds to the daily rice consumption (e.g. mango, jackfruit, maize, millet). However, rice is the most important staple food and to have little or no rice is a sign of poverty.

local conditions are not very favourable to high yields and few households have the means with which to buy HYV and chemical fertilizer. Thus a lower yield of 595 kg rice per hectare is also used to estimate the local rice production, under less favourable conditions.

The area required to produce rice including seed for one consumer, for one year, under these various conditions is as follows (for the calculation see appendix: "Area required per consumer"):

0.65 kg rice per consumer / 595 kg rice per hectare: 0.4386 ha per consumer
0.65 kg rice per consumer / 700 kg rice per hectare: 0.3728 ha per consumer
0.54 kg rice per consumer / 595 kg rice per hectare: 0.3644 ha per consumer
0.54 kg rice per consumer / 700 kg rice per hectare: 0.3097 ha per consumer
0.45 kg rice per consumer / 595 kg rice per hectare: 0.3037 ha per consumer
0.45 kg rice per consumer / 700 kg rice per hectare: 0.2581 ha per consumer

Therefore, using these calculations, the area recorded as private agricultural land at the end of the settlement in 1981, is not enough to feed the local population of the two villages under study. Only by cultivating a larger area or by raising the productivity per area, would it be possible to yield sufficient rice with which to feed the local population.

Table 28: Private agricultural land and required land

Various rates of rice consumption and yields	Necessary land for 545 consumers	Deficit of required land
0.65 kg daily cons. / 700 kg rice per ha	203.0 ha	50.0%
0.65 kg daily cons. / 595 kg rice per ha	239.0 ha	57.6%
0.54 kg daily cons. / 700 kg rice per ha	168.8 ha	39.9%
0.54 kg daily cons. / 595 kg rice per ha	198.6 ha	48.9%
0.45 kg daily cons. / 700 kg rice per ha	140.7 ha	27.9%
0.45 kg daily cons. / 595 kg rice per ha	165.5 ha	38.7%

However, there are two reasons why the above data on officially registered agricultural land is not a good indicator of local agricultural production: on one hand, land not recorded as private property nevertheless may be cultivated, as is the case with areas of shifting cultivation and part of *guda* land. On the other hand, land registered as "cultivable waste" may be encroached and transformed into agricultural land. Even land registered as uncultivable waste can be cultivated by the method of shifting cultivation. Thus, in chapter 3.2.5, local production of rice will be estimated using seed and not "land on paper" as an indicator of the de facto agricultural production in the two villages and their degree of self-sufficiency with rice.

3.2.4.2 Private land property by households

The total amount of cultivable land, which is registered as private land, does not yet tell us anything about land distribution among the households. Land, as well as land scarcity, are unevenly distributed among the households, as well as among the various groups of Juang, Munda, Gouda and Santal, as will be shown in chapter 4. The uneven distribution of agricul-

tural land is a certain indicator of the uneven dependency upon other sources of income with which to feed the household members.

Operational holdings (OH) in the District of Keonjhar are classified officially into five categories according to the size of the holdings:

Marginal	0.02-1 hectares
Small	1-2 hectares
Semi-Medium	2-4 hectares
Medium	4-10 hectares
Large	> 10 hectares

The criterion of the size of the operational holding does not imply any specific quality of the cultivated land and is therefore of only restricted value for a socio-economic evaluation of the peasants in the district. However, the application of this criterion to a smaller area, with similar natural conditions for the farmers concerned, as in the study area, is admissible.

Based on data of the settlement of 1981, the situation of the 136 households, with regard to private land property, is as follows:

Table 29: Private land property of the households in both villages

Category	Number of households (total 136)	Private land per household in ha
Landless	16	0
Marginal	10	0.01-0.19
Marginal	26	0.2-0.39
Marginal	28	0.4-0.59
Marginal	18	0.6-0.79
Marginal	7	0.8-0.99
Small	12	1.0-1.19
Small	6	1.2-1.39
Small	4	1.4-1.59
Small	3	1.6-1.79
Small	2	1.8-1.99
Semi-medium	1	2.125
Semi-medium	2	2.435
Medium	1	5.475

The size of the privately owned land, at the end of the settlement, varied between 5.475 ha in the case of the richest household, to 0.133 ha belonging to the poorest household. However, not mentioned in the Revenue Inspector documents are those households with no privately owned land.

In 1999, the average amount of private agricultural land per household is 0.6577 ha; 0.1797 ha per consumer.

11.8% of the 136 households are landless, 65.4% are marginal farmers, 19.8% are small farmers and only 3% belong to the category of semi-medium and medium farmers.

If the landless households are left out of the calculation, the situation of the peasants is as follows: 74.2% of the cultivators are marginal farmers, 22.5% are small farmers and 3.3% are semi-medium and medium farmers.

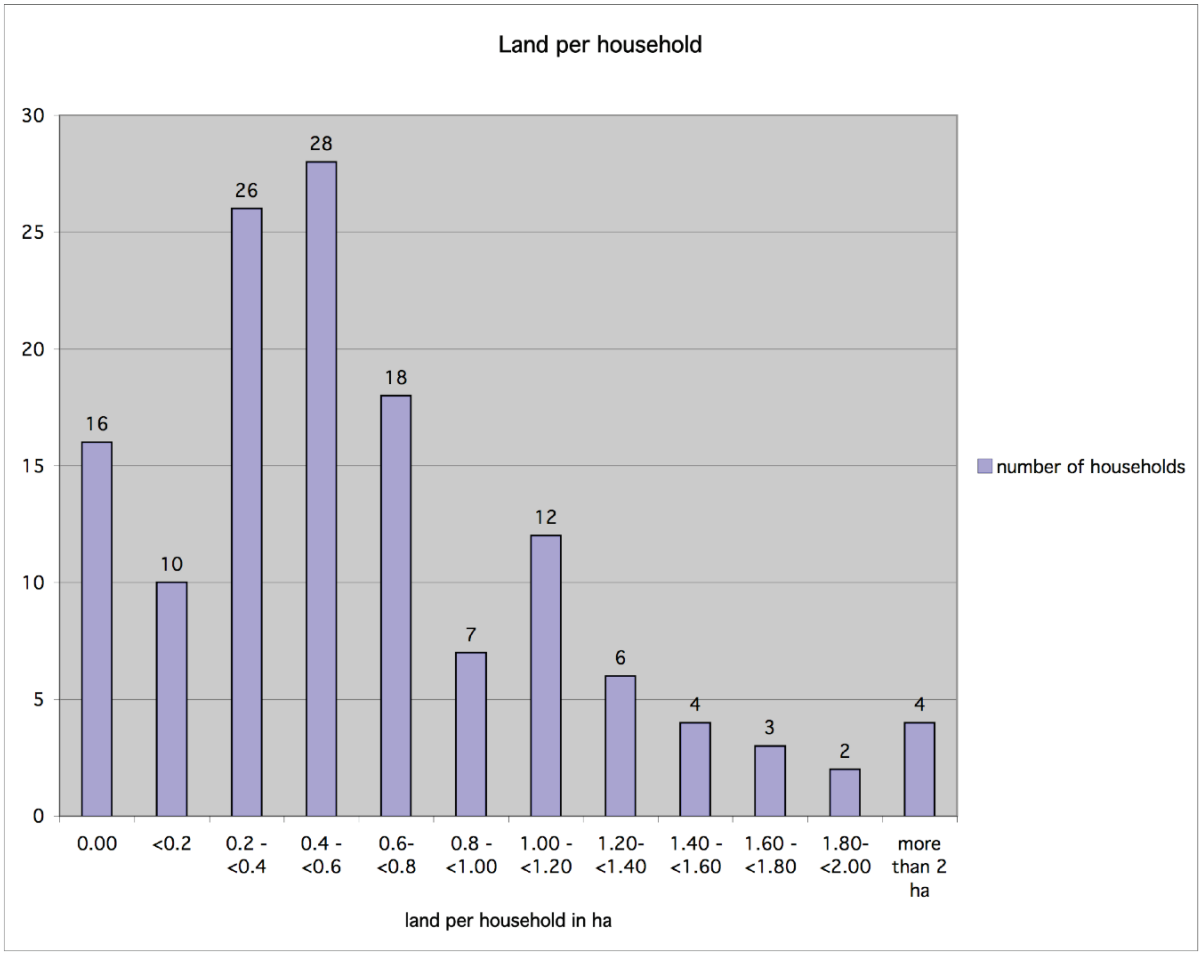


Diagram 1: land per household

The official categories of cultivators (Tripathy 1997:975) used by the Census of 1991 for the whole of Orissa were:

1. Marginal farmers: less than 1 ha (largest group in Orissa)
2. Small farmers: 1- 2 ha (second largest group in Orissa)
3. Medium farmers: 2-4 ha (third large group in Orissa)
4. Large farmers: 4 or more ha (smallest group in Orissa)

Marginal and small farmers generally have no margin for agricultural surplus. Medium farmers can be termed self-sufficient. Large farmers generate an agricultural surplus.

In Keonjhar District, operational holdings are categorised in a slightly different manner (District Statistical Handbook 1993:20):

Marginal Operational Holdings:	less than 1 ha
Small Operational Holdings:	1-2 ha
Semi-Medium Operational Holdings:	2-4 ha
Medium Operational Holdings:	4-10 ha
Large Operational Holdings:	10 ha and above

'Medium farmers' in the census for the whole of Orissa are classified as 'semi-medium operational holdings' in Keonjhar; the category of 'large farmers' in the census for Orissa is subdivided into 'medium operational holdings' and 'large operational holdings' in Keonjhar.

According to the 1991 Census, as well as my own data on the two villages, the situation of land ownership in the whole of Orissa, in Keonjhar District and in the two villages, was as follows:

Table 30: Percentage of various operational holdings in Orissa, Keonjhar and the two villages

Size of operational holding	All Orissa	Keonjhar District	Kodipasa and Upper Kansa
Marginal: up to 1 ha	53.7%	52.2%	74.2%
Small: 1-2 ha	26.3%	28.9%	22.5%
Semi-Medium: 2-4 ha	15.0%	14.6%	2.5%
Medium: 4-10	5.0%	4.1%	0.8%
Large: 10 ha and above		0.2%	0.0%
Total	**100%**	**100%**	**100%**

Compared to the general situation in Orissa, the two villages show a much higher percentage of marginal farmers, together with a lower percentage of all other categories of small farmers, semi-medium farmers, medium and large farmers.

Also in comparison to the situation within the District of Keonjhar, farmers of the two villages under study are worse off. This is explainable by the high percentage of tribal population in the two villages.

This data clearly shows that the overwhelming majority of the farmers, in the two villages under study, belong to the marginal and small farmers, who have no agricultural surplus and are not even considered to be self-sufficient. This means that they are dependent upon additional income either by wage labour, small business or wood selling. The precarious situation of the farmers, in the villages under study, is further aggravated by the uncertainties of rain fed paddy cultivation, little possibility of irrigation and low quality soil.

Data on the availability of land, per consumer, of the 136 households under study in 1999, illustrates the situation with regard to household size. Assuming a daily consumption of 0.5 kg rice per consumer unit and a rice yield of 700 kg rice per hectare, a minimal area of 0.2868 ha per consumer is required, to feed one consumer, for one year, including seed for the next agricultural cycle.

In Kodipasa, only twenty households (17.3%) had enough private land per consumer in 1999 and 55 households (47.4%) possessed less than half of the minimal area required, per consumer.

In Upper Kansa all of the households, except one, owned less than the minimal area required, per consumer and fourteen households (70%) owned less than half of the minimal area required per consumer.

However, land tenure on paper for the various households, does not necessarily correlate with the area cultivated by them: they may cultivate more land than they own; they may encroach government land and/or pledge, rent or informally buy land from other land owners. They may also cultivate less land than they own, by keeping land fallow, by mortgaging, renting or informally selling it to other people.

Thus, in the following section, data on seed available for the households, in 1999, is used as an additional indicator of the agricultural production of the households and their degree of self-sufficiency with rice.

3.2.5 Comparison of registered and de facto cultivated land

By comparing the use of seed, in 1999, with the nominal land (i.e. private agricultural land) owned by the local population and the various households, it is possible to estimate the area actually under cultivation, as well as the differences between nominal and cultivated agricultural land of the entire population and the various households (see chapter 4). It can be shown that although the estimated cultivated area is larger than the agricultural area on paper, there is still a considerable land and food scarcity to be compensated for by other sources of income such as wage labour and/or wood selling.

To estimate the size of the area sown with paddy seed in hectares in 1999, seed per household was converted in *mana* land: to cultivate one *mana* land, 20kg paddy seed is necessary. Two *mana* are approximately equivalent to one acre of land. Thus, the amount of seed was divided by 20 kg to obtain the number of *mana*. The number of *mana* were then divided by two, to obtain the number of acres: finally the number of acres were multiplied by 0.4047 to obtain the area in hectares (or roughly, kg seed divided by 100).

Kodipasa:
Estimating the actual cultivated land in Kodipasa, by converting paddy seed into cultivated area results in 106.4057 ha land being cultivated with paddy. Comparing the estimated cultivated land with land registered as private agricultural land, in 1999, approximately 8.47% more land has been cultivated by the villagers than there is agricultural land on paper: This figure is not surprising, as since the land settlement, additional government wasteland has been encroached by the farmers. If fallow *guda* land, together with land cultivated by several outsiders, in the village territory of Kodipasa, were to have have been included in the census, the additional de facto agricultural land in 1999, would have been even more than the estimated area of 8.47%. The following table illustrates the estimated scarcity of land, under various conditions of daily rice consumption and land productivity in Kodipasa, by estimating the difference between cultivated and necessary land:

Table 31: Scarcity of land under various conditions of daily rice consumption and land productivity in Kodipasa

Rice consumption and yields	Necessary land for 461.25 consumers in ha	Difference between cultivated and necessary land in %
0.65 kg daily cons. / 700 kg rice per ha / 0.3728 ha per cons.	171.9540	38.12*
0.65 kg daily cons. / 595 kg rice per ha / 0.44 ha per cons.	202.9500	47.57
0.54 kg daily cons. / 700 kg rice per ha / 0.3097 ha per cons.	142.8491	25.51
0.54 kg daily cons. / 595 kg rice per ha / 0.3644 ha per cons.	168.0795	36.69
0.45 kg daily cons. / 700 kg rice per ha / 0.2868 ha per cons.	119.0486	10.62
0.45 kg daily cons. / 595 kg rice per ha / 0.3374 ha per cons.	140.0816	24.04

* Thus an additional 38.12% of the cultivated land would have to be cultivated in order to feed all consumers.

Upper Kansa:
Because *toila* land is not registered as private agricultural land, the difference between cultivated land and nominal land here is even larger than in Kodipasa. Land for cultivation is not perceived as a scarce resource by the shifting cultivators of Upper Kansa. The reason why the peasants do not produce more, is not because they do not have access to sufficient land. The scarcity of locally produced rice here, is linked partially to high labour input for shifting cultivation, restricting the size of swiddens. Also, these shifting cultivators do not produce more because they realise that wood selling and wage labour are viable options for obtaining an income.

Conclusion:
Based on available data, the following statement can be made: neither the area officially recognised as agricultural land, nor the area actually under cultivation in the two villages, produce enough rice to feed the local population under the given conditions of cultivation. There is a scarcity of locally produced rice, but this is not tantamount to a scarcity of land.

In Kodipasa, peasants complain about the scarcity of agricultural land. By this, they mean that there is a lack of land of good agricultural quality worth investing labour on. More wasteland could be cultivated. However, the encroachment of government land registered as cultivable waste is linked to high labour costs and low productivity and does not pay in comparison to other sources of income. On the other hand, land productivity could be increased. Irrigation systems would lower the risk of crop failure and even allow for a second paddy harvest. However, raising the land productivity also requires additional labour and capital, which few households can afford.

Thus, under the given conditions of cultivation there is not enough land in Kodipasa.

In Upper Kansa the reason for the deficiency of locally produced rice is not scarcity of land, but high labour input combined with a low and risky return on labour for shifting cultivation in comparison with other opportunities for obtaining an income.

3.2.6 Self-sufficiency measured by seed per consumer

The quantity of seed sown, per consumer unit, in 1999, is taken here as a more reliable indicator of the degree of self-sufficiency of the villages and households (with regard to the production of rice as staple food) than formally owned land. The average quantity of paddy seed per consumer used, in 1999, is below the quantity required per consumer to produce enough rice to feed one consumer including seed for the next cultivation period. Again, calculations are based on the assumption of various rates of daily consumption, together with a harvest rate of 1:10. This corresponds to the harvest rate of *bila* cultivation. Under these conditions the quantity of paddy seed required, to feed one consumer, for one year, including the production of seeds is as follows:

Table 32: Required paddy seeds per consumer

Daily consumption of rice in kg	Annual need of rice per consumer	Converted in paddy (multiplied by 1.428)	Plus 10% seed	Paddy seed in kg per consumer (10%)
0.65	237.25	338.79	372.67	37
0.54	197.1	281.46	309.60	31
0.45	164.25	234.55	258	26

The diagram on paddy seed per consumer of the various households illustrates the quantity of paddy seed per consumer, which was available in 1999, for both villages:

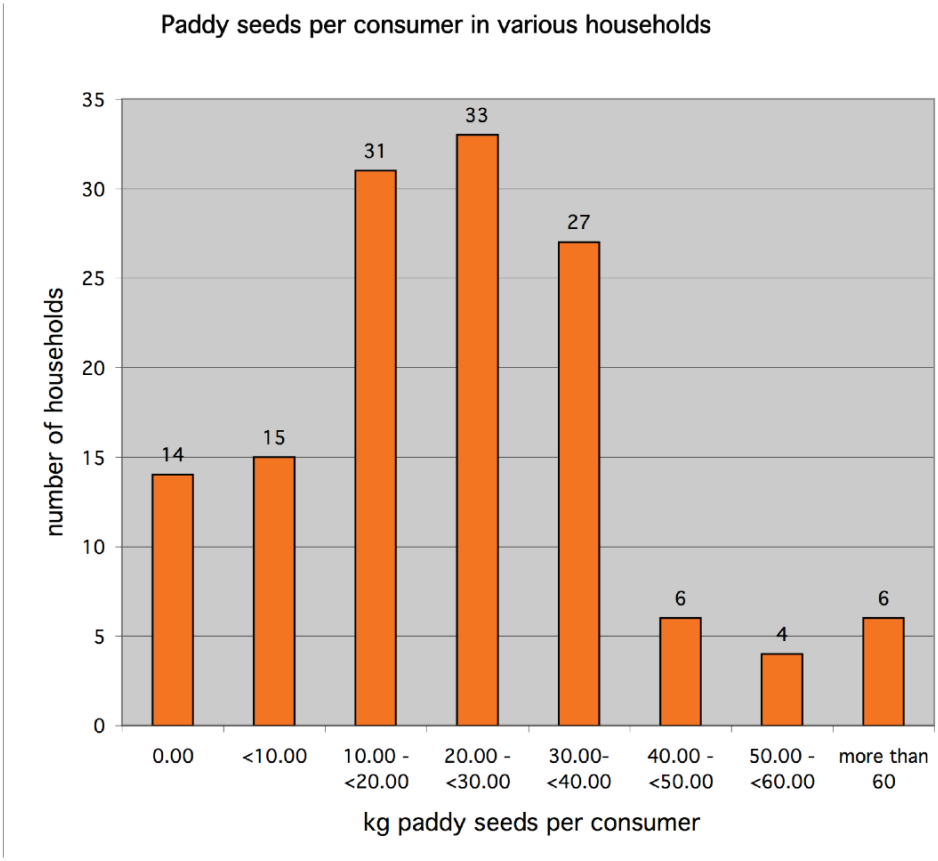


Diagram 2: Paddy seeds per consumer

Based on the total available seed, in 1999, the cultivated area in both villages corresponds to an area of 127.2326 ha.

In Kodipasa the average quantity of paddy seed available, per consumer, in 1999, was 23.8 kg, this results in an average deficit of 18% / 23% or 36% of paddy seed per consumer. Only 39 households (33.6%) sowed 26 kg or more paddy seed per consumer unit in their family. Using a calculation of 31 kg seed per consumer with a daily consumption of 0.54 kg rice, 32 households (27.6%) could sow this amount or more per consumer.

Thus, compared with the data on nominal land per household and consumer, the degree of self-sufficiency is higher, if paddy seed is used as a measure. However, many households may be self-sufficient with rice, on an average year only and on a minimal level of daily rice consumption, without any surplus for gifts, ceremonies or emergencies.

In Upper Kansa the average of paddy seed per consumer, in 1999, was 20.5 kg. *Niger* seed per consumer was 2.32 kg. Converted into paddy seed (multiplied by 2.86) this corresponds to approximately 6.64 kg. Thus, the average quantity of 27.14 kg paddy seed per consumer is higher than in Kodipasa. However, land productivity in Upper Kansa is lower, the risk of crop failure is higher and self-sufficiency with rice with this quantity of seed is not attainable even in a good year.

In Upper Kansa, twelve households (60%) sowed 26 kg or more paddy seeds (including niger seed converted to paddy seed) per consumer in their family. The remaining eight households were below this quantity. However, yields from shifting cultivation are lower and losses due to animals from the surrounding forest, are higher, so that the same amount of seed yields less than on the plain.

On the other hand, the availability of land in Upper Kansa is less restricted than in Kodipasa, which partly explains the higher degree of potential self-sufficiency, with regard to a minimum rice consumption of 0.45 kg per day.

To be landless on paper does not mean to be landless in reality: households with no private land may cultivate land from other families, by either renting, buying or seizing (mortgaging) it. On the other hand, households with land may cultivate only part or none of it.

Of the sixteen landless households, twelve are Gouda (75%), one is Munda (6.25%) and three are Juang households (18.75%); thus the majority of the landless households belong to the non-tribals and immigrants. Investigation into the quantity of paddy seed used by the various households in 1999 reveals, that all of the twelve landless Gouda families cultivate paddy land, albeit of varying size. The landless Munda household also cultivates paddy land, while of the three landless Juang families, one cultivates paddy and the other two do not.

If considering the households which are not cultivating, i.e. households with no seed, in 1999, in both villages, the situation is as follows: out of 136 households fourteen are not cultivating (10.3%). Twelve of these non-cultivating households are Juang and eleven of these twelve Juang households are registered landowners and only one has no land. The other two are one Santal and one Munda household. Both are landowners who were not cultivating their land.

This information clearly shows that the data on land ownership does not correlate with data on actual cultivation. This is also visible in Diagram 3 on private land and seed per household of both villages, where each blue dot indicates a household with its privately owned land, and the corresponding red dot below or above in a vertical line indicates the amount of land actually cultivated by the household, calculated by the amount of paddy seeds used in 1999.

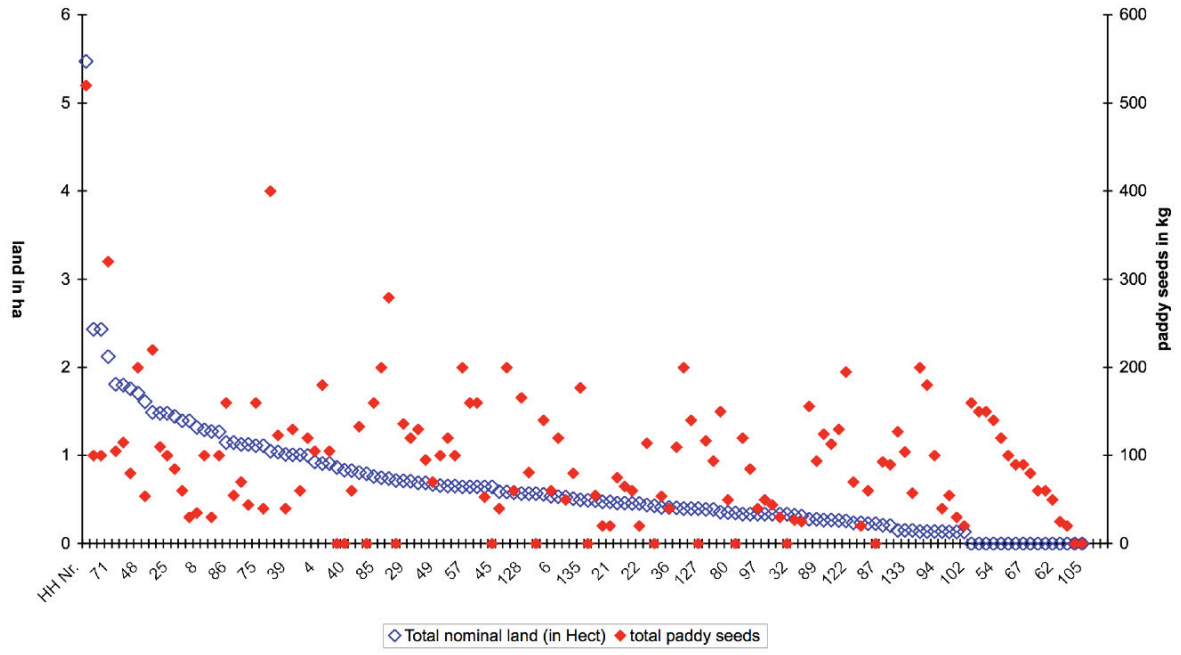


Diagram 3: Private land and seeds per HH

Furthermore, shifting cultivation on non-registered land in Upper Kansa has to be considered, i.e. households in Upper Kansa cultivate additional land, which has not been considered as private property by the settlement officers.

Since the settlement of 1982, there is a clear tendency of reduction in landed property. This trend is on one hand connected to the heritage system, which requires the equal sharing of

landed property among brothers. In the case of the biggest landowner in Kodipasa (see table 29), this Juang household was still in possession of 5.475 ha in 1999, due to the fact that this land had not yet been divided among the four sons. However, two sons have recently married and they will, in due course, get their share of this land. On the other hand, there has been no major land reclamation since the settlement to compensate for the needs of the growing population. Cultivable land in the area is exhausted.

3.3 Wage labour

Wage labour is an important source of income for the population under study. It mainly consists of various forms of farm wage labour and off-farm wage labour activities. The availability of wage labour in many cases is irregular, insecure and seasonal, not only for work connected to agriculture, but also for off-farm activities. This is also the reason why it is not possible to obtain accurate data on the numbers of days spent by each household member annually for wage labour. Villagers do not count the days they earn wage labour. The same methodological problem is linked to quantitative data for wood selling.

However, based on the estimation of the agricultural production of each household and the additional income that it needs in order to purchase further supplies of food and cover other minimal needs at the market, it is possible to calculate the deficit of each household. Thus, we can calculate how much has to be earned by wage labour and/or wood selling. For households which follow a strategy of mixed economy, (combining agriculture, wage labour and wood selling) we do not know exactly how much of this deficit is covered by wage labour and how much by wood selling. This applies to the majority of households.

However, based on observations in the field and on the analysis of the number of households and adults involved in wage labour and wood selling, some general estimations about the percentage of income earned by wage labour and wood selling are permissible. These estimations will be presented after the general description of the situation with regard to wage labour and wood selling in chapter 3.5

3.3.1 Farm wage labour

Farm wage labour is seasonal and its availability also depends upon the general agricultural conditions. In a good year, more farm wage labour is available, but there is also more work to be done on own farms and this has to be combined with farm wage labour. Particularly in bad years, when the dependence on farm wage labour is high and the demand for wage labour is low, there is an excessive supply of daily wage labour in the region and it is not always possible to get farm work.

Weeding, transplanting and harvesting are mainly carried out by women. It is mainly the men who carry out the ploughing, together with the construction of embankments, although they are also used as wage labour for transplanting, weeding or harvesting paddy. Farm wage labour is mainly done outside of the two villages, in neighbouring villages on the plain. The salary for farm wage labour is higher in other villages than at home. It is paid in cash or kind (paddy). Women receive a daily wage of approximately 20-25 Rs. or seven to twelve *mano* paddy, depending upon their work and the conditions in the labour market for farm work (7-8 *mano* for weeding, more for harvesting). They prefer to receive their salary in kind: with 20 Rs. they can buy approximately 2 kg rice at the market: 7 to 12 *mano* paddy are equivalent to 3.5 to 6 kg paddy which will provide 2.45 to 4.2 kg rice (3.3 kg on average).

The salary for the men involved in harvesting is higher: they earn 25 to 30 Rs per day or up to 15 *mano* paddy. Their work is to bind the paddy into bundles and to carry it.

For the same work the local wage in Kodipasa is 7 *mano* paddy (2.45 kg rice) plus one meal for the women. Men get 9-10 *mano* paddy plus a meal.

Another form of farm wage labour is the herding of cattle. There are two work systems for herders. One system is part of an old pattern of social division of labour to be found in many Indian villages. In this system there are special herders who take care of the cattle belonging to the villagers. They receive a small daily remuneration and an annual salary in kind (paddy) from each household for grazing the cattle. The Gouda men and women were employed in this role at the beginning of their migration to the Juang area and several of them are still herders for the Juang. The two Gouda households, which graze the cattle of Kodipasa, manage to subsist with this salary; they do not buy any additional rice at the market.

The other system is individual wage labour as a herder for individual households, i.e. to take care of the cattle of one specific household, for an annual salary in cash, daily food and a place to sleep, if the herder is employed in a place far away from home. Over a period of time, several of the Juang have become this type of herder for the Gouda. It is a job for males; mainly Juang boys or unmarried young Juang men. There are various arrangements; in one case a young Juang gets daily food and 800 Rs. in cash, for herding the cattle of a Gouda family over a period of seven months. Another Juang gets daily food plus 1000 Rs. for seven months. Another gets daily food and 1200 Rs. for seven months. Another one gets 7 *Khandi* Rice and daily food. Such arrangements partly ease the burden on the Juang households; there is one less consumer in the household, but some additional rice and maybe the possibility of an income in cash. However, the money earned by the male Juang herder may be spent at his will, and may not necessarily contribute to the household's cash income.

In one case, a Gouda man takes care of a large herd of cattle, belonging to the richest Juang. He receives a daily allowance of three litres of milk, which he can sell for 30 Rs., plus an annual allowance of paddy. His household manages to live on this income.

The following table shows the number of households and individuals in the two villages involved in farm wage labour:

Table 33: Farm wage labour in the two villages

Village	Total number of households	Households involved in farm wage labour	% of adults involved in farm wage labour
Kodipasa	116	88 (75.9%)	41.5% (153 of 369)
Upper Kansa	20	13 (65.0%)	29.0% (18 of 62)
Both villages	136	101 (74.3%)	39.7% (171 of 431)

3.3.2 Off-farm wage labour

Off-farm wage labour is less available than farm wage labour. It is mostly uncertain, irregular and seasonal. Off-farm activities open to the villagers are mainly for unskilled labour (road construction, canal construction, pond digging, mining, stone cutting), with wages paid daily, weekly or per quantity of delivered work. Daily wages vary between 25 to 30 Rs. for female wage labour for canal construction, road construction and mining. For the same work, men are paid 30 to 40 Rs. A skilled labourer in house construction earns 60 Rs. per day, but there is only one skilled labourer in Kodipasa (a Santal).

Table 34: Off-farm wage labour in the 2 villages

Village	Total number of households	Households involved in off-farm wage labour	% of adults involved in off-farm wage labour
Kodipasa	116	59 (50.9%)	22.0% (81 of 369)
Upper Kansa	20	9 (45.0%)	14.5% (9 of 62)
Both villages	136	68 (50.0%)	20.9% (90 of 431)

With stone cutting, which is exclusively male work, 140 to 270 Rs. per week can be earned (24 to 45 Rs. daily), although to earn a wage of 45 Rs. involves very hard and lengthy work and is exceptional.

3.4 Forest as a source of income

The sale of timber to outsiders, in order to obtain cash income, has been common among the Juang, since the 1960s, and probably for much longer.

McDougal mentions the wood trade and observes that "Men occasionally shape rough pieces of lumber from tree trunks and sell them at the market" (McDougal 1963:15). However, he does not mention either the sale of firewood in general, or the involvement of the Juang women in the sale of wood. Bose (1967:106) also refers to the Juang selling wooden logs of different types at the market and he even indicates that "recently restrictions have been imposed for the cutting of timber from the forest". According to him the Juang women earn some income from the sale of mats, which they make from the leaves of the date palm.

Rout (1969) is more specific about wood selling activities by those Juang villages situated nearby Keonjhargarh. He even mentions "Kudiposa", the village under study here. He does not explicitly specify such activities by the Juang men and/or women and comments generally on the sale of wood by "the Juang". Most probably, however, he refers to Juang men when generally referring to "the Juang".

> "The Juang of Juang Pirh of Keonjhar take logs and loads of firewood to sell in the Keonjhar market. The Juangs of Barura, Tangarpara, Gonasika, Rodhua, Champei etc., cut timbers of valuable trees and take the trouble of carrying them as far as ten to fifteen miles to sell them in Keonjhargarh weekly market. A log fetches three to ten rupees depending on its size and quality and the Juang purchase tobacco, cloth and other necessaries with this money. The unmarried boys spend the money for purchasing gifts for their bandhu girls. The Juang of the nearby villages always bring loads of firewood to Keonjhargarh for sale. They also make charcoal by burning logs of wood into embers and sell those. The villagers of Kudiposa, for example, regularly sell fuel and charcoal. A load of firewood fetches twelve annas or a rupee, but a load of charcoal may be sold for three to four rupees.
>
> The Juang women earn a little money by selling mats in the markets. They weave mats of date-palm leaves in their leisure hours and sell these in the market. A mat is sold for eight annas or a rupee and the money may be spent for buying parched rice, sweet potatoe, cloth or ornaments" (1969:42).

There is no specific mention of girls and women selling wood and buying rice with the money. There are various indications that the selling of forest products such as timber and fuelwood has since then gained considerable importance to the local economy of the Juang villages, at least for those not too far away from the markets. In more remote Juang villages, the distance for carrying timber and firewood to the market may be too far to be walked, there and back in one day. In some cases, however, road communications make it possible to carry wood to the market and return by public transport. The other option, of carrying the load by public transport and walking back to the village is avoided, due to the risk of being caught by forest guards, at the check gates of the forest department road.

One indication of the growing economic significance of wood is the fact that women have entered the business of wood selling. Some fifteen to twenty years ago, in Kodipasa and Kansa, the women and girls did not sell any firewood, whereas nowadays many of them carry two to three head loads of firewood, per week, to the market in Keonjahr or to the nearby villages. Also, the involvement of the Juang men in the sale of wood has increased. They have always carried timber to the town and larger villages on the plain. However, compared with the situation, twenty to thirty years ago, they admit that the frequency with which they have done this has increased. Also, in recent years, they have sold and continue to sell larger quantities of firewood. To make three weekly trips to other villages on the plain, or to the town itself, to sell timber and firewood is something that the elder Juang did not witness in their youth.

According to the price index of 1966 to 1968, one rupee could buy the Juang 0.889 kg rice in 1966, 0.826 kg rice in 1967 and 0.811 kg rice in 1968 (ODG 1986:213). Based on the fact that a load of firewood would fetch one rupee in the 1960s, this would not have been enough for the Juang to buy even 1 kg rice. In 1998/99, they could only purchase 0.1 kg rice per rupee. However the price for a head load of fuelwood was 30 to 40 Rs., according to season and size, i.e. 3 to 4 kg rice, could be bought at the market in Keonjhar for this money (the price for one kg of rice at this market during the period of this research was around 10 Rs.). Although there are considerable seasonal and annual fluctuations in prices for agricultural crops and rice, especially due to fluctuations in supply, the price for firewood and timber has steadily increased during the last few decades and therefore the economic incentive to sell wood has strengthened with higher returns to labour.

Part of the explanation for the growing significance of wood to the local economy of the Juang villages, is related to the growing demand for it, from the towns and villages on the plain. The village elders remember the time when Keonjhargarh was a relatively small township, with the Collectorate at its centre. It had fewer inhabitants, few “hotels” and almost no shops. In the meantime, the district capital as well as the surrounding villages have grown, accompanied by a rising demand for timber and fuelwood, due to dwindling access to local forest resources.

The fact that the hill forests in the Juang area have increased in importance, as providers of timber and fuelwood, is also indicated by an increasing number of outsiders entering these forests, to collect timber and fuelwood, either for their own use or for sale. According to the Juang of Kodipasa and Kansa, approximately twenty years ago, hardly any outsiders came to the forests of Kodipasa and Kansa for this purpose. The forest resources were mainly used by the Juang and Bhuiya. Nowadays, early in the morning, one may observe columns of men, women and children from the villages on the plain, entering the forest They carry small axes on their shoulders, and food supplies; as they will spend the entire day in the hills. By late afternoon, they return back home with bundles of wood and small timber. The pressure on forest resources, due to the local villagers, as well as outsiders, has therefore increased. According to the elder Juang, the felling of trees for fuelwood production was not carried out in the past, as there was sufficient dry wood to be sold. They consider the cutting of trees for firewood to be a result of the growing scarcity of dead wood.

There is a continuous demand for fuelwood throughout the whole year. The price of firewood, however, fluctuates considerably, according to the season and the market supply. More suppliers offer their bundles during the months when there is little or no agricultural activity, whereas, during agricultural peak seasons fewer people have time to collect fuelwood for sale and the price increases. Part-time wood sellers are, at this time, busy with their own farms or work as farm wage labourers. Customers will buy into stock when prices are low, so that even with a large supply, a wood seller, in most cases, will sell his bundle. Thus, the price for an

average bundle of firewood, carried by a woman on her head, varies between 30 and 40 Rupees. The weight of such a bundle varies somewhat between 22 to 25 kg. Girls may carry smaller bundles of approximately 12 kg for which they will receive about 10 Rupees, in nearby villages. A man gets between 60 and 90 Rupees for his firewood; two bundles of about 20 kg each are fixed at both ends of a pole, which he carries on one shoulder (this is locally called *bahangi*; ODG 1986:36).

To calculate the daily income from the sale of wood, the amount the sellers receive at the market has to be divided by two days labour; one day for collecting and preparing, the other day for selling. Thus the income from a day's work for wood selling is between 15 and 20 Rs. for women and between 30 and 45 Rs for men. It is theoretically possible for an adult woodseller to earn a weekly income of between 90 to 120 Rs. (females) and 180 to 270 Rs. (males), according to seasonal price fluctuations. Spending this money on rice allows the purchase of 9 to 27 kg rice weekly, i.e. enough to feed between one and four adult consumers throughout the year. However, the pattern of making three weekly trips to the forest to collect wood, and the same number of trips to sell it, is not viable throughout the whole year, due to seasonal difficulties (heat or heavy rain) and the hardship of this kind of work.

Wood-selling activities in Kodipasa and Kansa increase considerably during the first three months of the year (January, February, March), when agricultural activities have reduced to a minimum or ceased altogether. Harvesting and threshing of paddy has finished and work for the next cultivation cycle has not yet started. More people now have sufficient time to collect wood, and the weather conditions are suitable enough for working in the forest. Due to its abundance, the price of firewood declines at this time of year. The price of timber for construction purposes fluctuates according to the time of year and the relative demand for it. Timber yields a good price in these months, as it is an ideal time for construction and repairs. During this period in Kodipasa, one gets the impression of living in a village of woodsellers; groups of men and women leave their houses in the morning with their axes, and return in the afternoon, heavily laden with firewood or timber. The wood that has been carried from the forest has to be prepared for sale; the small poles and branches have to be split into well-sized logs and properly fixed into bundles for transport and sale. Women carry the bundles as head loads, men carry two firewood bundles fixed to a pole carried on one shoulder. Trees cut for the purpose of firewood for sale include more than twenty species (see the list of "Reserved tree species in the forests of Keonjhar Division" in the appendix), of which some are classified as reserved species; these are protected by law and their felling is illegal.

The species cut for timber purposes include *Shorea robusta* (Sal*)*, *Diospyros melanoxylon* (O = Kendu; J = Teren), *Buchanania lanzan* (O = Charo, J = Tarap), *Schleichera oleosa* (O = Kusum, J = Bangrur), *Madhuca indica* (O = *Mahul*, J = Munnun), *Terminalia alata* (O = Asan, J = Antanak), *Albizia lebbeck* (O&J = Sirisa), *Mitragyna parviflora* or *Adina Cordifolia* (Koimo), Jhalai (botanical name not identified by the author), *Croton oblingofolius* or *Croton roxburghii* (Putuli). Poles to be sold as timber for construction purposes have to be rectangular in shape and therefore have to be cut accordingly.

During this period of time, outsiders visit the village to contract the local men for the production of timber. While I was in the village in 1999, two men from Keonjhar ordered 40 to 50 timber poles of approximately three metres in length. The price that they paid to the local men was 40 Rs. per pole. This was lower than the price that the timber would have fetched outside the village, however, this reflected the fact that the contractors had to take charge of the transport and risked being caught by the foresters. Several of the Juang and Munda men accepted this offer and the timber was then taken away by lorry. Two days later another contractor ordered 120 poles, paying 37.5 Rs. per pole. A group of five Juang and two Munda

men accepted this offer and supplied the timber to a village nearby the Narayanpur Reserved Forest.

The weekly working pattern of the wood trade during the peak season consists of alternatively collecting wood in the forest and preparing it for sale one day, and carrying it to market for sale the next. Typically, Monday is a day of rest. Those people who have made money from their sales at the Sunday market, may use it to purchase and drink *handia* or *mahul*.

From April onwards, wood selling activities decrease with the start of activities in the fields, which increase in the middle of May. In Upper Kansa, the men are busy clearing new swidden plots, from the middle of March onwards, and women are busy clearing the second-year swidden fields. Towards the end of April, the first ploughing of *bila* fields starts in Kodipasa, after the first rainfall. Depending upon the size of the cultivated land, the availability of labour and climatic conditions, wood selling is continued by various households and to varying degrees, in combination with the necessary agricultural work. In 1999, in Upper Kansa for example, the men as well as the women were selling wood until the end of May; as the rainfall was little and late, there was a delay in agricultural activities.

Some households also prepare stocks of fuelwood for sale, before commencing work on the farms; this enables them to sell wood without going to the forest. Thus, the women of Upper Kansa still sell wood, in nearby villages on the plain, during periods of hard agricultural labour; they get up very early in the morning, fix the wood already collected in the dry season, sell it and return to start work on their fields.

Weeding is a time consuming job and it therefore reduces the possibility of collecting and selling wood considerably. Moreover, July and August is the peak season for rainfall, rendering wood collection cumbersome. This is a difficult time for the villagers, as in many households rice stocks are exhausted, new paddy is not yet harvested and monetary income from wood selling is impossible or very difficult. This is a period in which debts are incurred, be they in cash or kind.

The price of fuelwood now increases due to a reduced supply. Customers in the villages on the plain, and in the town understand the fluctuations in price and they therefore buy fuelwood in advance, if they have the financial means with which to do so.

From the middle of September onwards, the harvesting of the early varieties of paddy, which is grown on *badi* land, starts. Harvesting of paddy and other crops goes on until the end of December. Wood sales, however, start to increase towards the end of the rainy season again, in combination with the necessary on-farm activities, be it on the individual's own fields or on other people's fields working as farm wage-labour. The selling price of fuelwood is still good during the months of September through to December, due to the growing demand, in the cold season, and because there are fewer people selling firewood than in the months from January onwards. This is a time when more people are to a large degree involved in wood selling activities and when the demand for timber for construction rises. Larger supplies of fuelwood from January onwards decrease the price and the cycle starts again.

3.4.1 Wood selling

The following data illustrates the actual situation regarding the importance of wood selling for the whole population and the two villages under study:

Table 35: Wood selling in the two villages:

Village	Total number of households	Households involved in wood selling	% of adults involved in wood selling
Kodipasa	116	88 (75.9%)	46.1% (170 of 369)
Upper Kansa	20	19 (95.0%)	75.8% (47 of 62)
Both villages	136	107 (78.7%)	50.3% (217 of 431)

The economic importance of wood selling for the majority of the villagers is obvious from this data. More than 78% of all households, and half of the adult population in the two villages, earn at least part of their income from the sale of wood.

With a view to the agrarian situation in the area, it is clear that there is a need for other sources of income, to compensate for the deficit of rice. For many households in Kodipasa, the scarcity of agricultural land is a major reason for selling wood as means of generating additional income. Natural population growth, together with immigration in an area, which has limited, low quality agricultural land (as demonstrated in chapter 3.2), forces part of the working population to look for other sources of income. The land available for agricultural purposes can be redistributed among the households by selling, renting or mortgaging, as will be shown in chapter 4.4.1, but it does not increase. Substantial changes can only be made either by major improvements to the irrigation facilities to intensify land use, or by a high investment of labour in order to reclaim cultivable wasteland.

In Upper Kansa, land scarcity does not seem to be a reason for the strong involvement in wood selling activities. However, low productivity of land and labour, with high environmental risks in shifting cultivation and a high demand of labour during the peak season, make it difficult for households to be self-sufficient by means of paddy. A combination of shifting cultivation, wage labour and wood selling is the best strategy for acquiring the necessary income. It is not surprising, that the villagers of Upper Kansa, who live in the forest close to its firewood and timber resources, focus on wood selling more than do the villagers of Kodipasa. Problems with other sources of income from wage labour and/or off-farm activities have been elaborated above. The opportunities for wage labour are few and the forest dwellers dislike working for others. They prefer to work independently and the demand for wood, be it fuel or timber, is given by villagers in the plain and people in the town who have no or only difficult, or no, access to the distant forests. However, several men also explained, that they prefer wage labour to wood selling, as selling timber is illegal and involves the risk of being caught by the foresters.

3.4.2 Other forest products

The forest provides a broad range of resources, other than fuelwood and timber for sale or household consumption. It offers materials which can be used for house building, making agricultural implements, household utensils, furniture, ropes, mats, fences etc. Most villagers have domestic animals and the forest is also a source of fodder for cattle and goats, which graze in the forest.

The Juang men enjoy hunting: however, prey is very rare and thus hunting does not really contribute to the nutrition of the people.

The collection of wild edible forest products (roots, tubers, fruits, seeds, mushrooms, honey etc.) is done to varying degrees by the villagers: with the exception of the higher ranking Gouda, most households collect some of these products. However, their availability is seasonal and therefore the villagers have a limited period in which they can collect and consume them. Their availability is of a greater importance to the poor households, who cultivate

little or no paddy. The main strategy of these poor households is to obtain a money income in order to buy rice or to work for income paid in paddy. Thus, in poor households edible forest products contribute more to their diet than they do in the more affluent households, but little to the total consumption of food.

3.5 Returns to labour of various economic activities

A comparison between returns to labour of the various economic activities shows returns of *bila* paddy cultivation, under good conditions, to be the highest. The scarcity of land in Kodipasa partially explains why a majority of villagers opt for wage labour and wood selling as important source of income. In Upper Kansa returns to labour for shifting cultivation are on average less than for both wage labour and wood selling.

Average returns for wage labour and wood selling are similar, although wage labour is marginally higher.

Table 36: Returns to labour of various economic activities per man-day of labour

Type of activity	Labour productivity per man-day of labour in kg rice (average in brackets)
Cultivation of 1st and 2nd *toila* land (average)	2.3, 3.1 (2.7)
Cultivation of 1st and 2nd *guda* land calculated in paddy (average)	3.6
Bila cultivation	5.2-7.7 (6.45)
Badi cultivation	5.3
Farm-wage labour	2.45-4.2 (3.3)
Off-farm wage labour	2.5-4 (3.25)
Wood selling	1.5-4.5 (3)

The average income derived from farm wage labour is marginally higher than that of wood selling. However, the availability of farm wage labour is less regular (depending on season and demand) than wood selling, although price fluctuations of fuelwood and timber are higher.

Regular off-farm wage labour would, in the long run, probably equal or be greater than the income derived from wood selling. However, the scarcity, irregularity and uncertainty of off-farm wage labour do not make it a viable alternative to wood selling under the given circumstances. Usually people are employed under short-term contracts for periods of several days, weeks or at best months per year. This may explain the rather low percentage of off-farm wage labour, in comparison to wood selling and farm-wage labour.

The high degree of involvement of most households in the business of selling fuelwood and timber can be explained by a variety of reasons. There is a necessity for every household to earn some cash. In many cases households suffer from a deficit of paddy from agricultural production which has to be balanced by purchasing rice at the market. The scarcity and seasonal variation of the demand of wage labour on one hand, and the fact that wood selling is possible for everybody and over large periods of the year on the other hand, are two more factors which partly explain why households do sell fuelwood and timber. Moreover returns to labour from wood selling are not so bad in comparison to other economic options except the cultivation of *bila* land.

Based on all available data and on observations in the field, it is possible to roughly estimate the percentage of household income derived from wage labour and wood selling in the following way:

A household's minimum needs have been calculated taking into account the annual amount of rice (0.54 kg) and cash (1250 Rs.) needed per consumer to cover their minimal purchases at the market (clothes and other basic goods). The minimal cash requirement for basic needs (see also chapter 4.2.) in addition to money needed to compensate for the deficit of paddy from their own agricultural production, gives us an indication as to how much income each household has to earn by wood selling and wage labour:

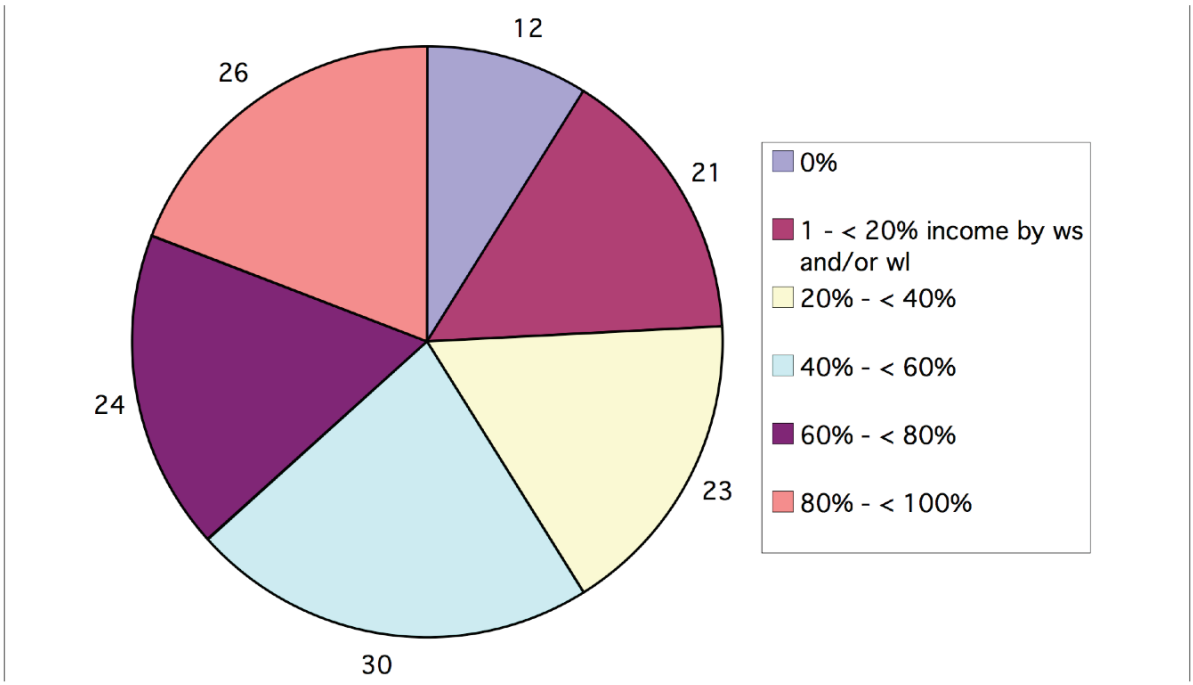


Diagram 4: Number of households and their percentage of income earned by wood selling and/or wage labour

Given the fact that returns to labour for wage labour and wood selling do not differ to a high degree, that wage labour is not available throughout the year and that the demand for it is seasonal and irregular, it is estimated in this study that at least 50% of the required cash income of households which are involved in wood selling is earned by carrying wood to the market. Based on these estimations, more than 350 tons of wood are sold annually by the majority of the households of the two villages. On average this corresponds to roughly 38 bundles (25 kg in weight) of firewood per day.

This estimation is supported by quantitative data on the number of households and adults involved in wage labour and wood selling (see tables 33, 34 & 35) and by personal observations in the field. In many cases the cash income derived from wood selling covers more than 50% of the household's minimal basic needs, including additional rice purchased at the market to compensate for the deficit of paddy production. Moreover the importance of the cash income obtained from the sale of wood increases in times of crop failures as well as in situations where household expenditure rises due to exceptional costs e.g. for the marriage of a family member.

Timber for sale

Tribal man carrying firewood for sale (*bahangi*)

Juang women from Upper Kansa carrying wood to the market

Balirai, a young Juang woman of Upper Kansa with firewood (headloading)

Tribal wood sellers nearby Keonjhar market

3.6 Summary

The local economy is characterized by a patchwork of three main sources of income: farming, wage labour and wood selling.

What can be said for all of the peasants in both villages is that the more food has to be purchased at the market, the more income has to be raised by wage labour and/ or wood selling. However, the degree of self-sufficiency with locally produced paddy is not necessarily linked to the availability of land, as the case of Upper Kansa illustrates. Here, high labour input for shifting cultivation and low return to labour, combined with high environmental risk make wood selling a rational economic option for the villagers: to buy paddy at the market by selling wood or doing wage labour is a viable alternative to the production of own paddy.

However, in Kodipasa, the scarcity of land is a problem, and the area is deficient in food production even in good years. The scarcity of good agricultural land for permanent paddy cultivation is one of the main reasons why wood selling has become a way of generating income in Kodipasa. Natural population growth, together with immigration into an area with limited agricultural land of poor quality, has forced part of the working population to look for other sources of income.

The land available for agriculture can be redistributed among the families and households by selling, renting or mortgaging (see chapter 4.4.1) but its acreage does not increase. Substantial changes could only be made by a higher investment of labour in order to reclaim cultivable wasteland, or by intensifying the use of land, by making major improvements to the irrigation facilities. Several factors deter the small peasants from doing so: the reclamation of the remaining low quality wasteland requires a high labour input and yields are low during the first few years. Poor households, in particular, lack the ability with which to invest labour without immediate returns. Moreover, it is uncertain as to whether the peasants will receive land titles for encroached government land. To intensify land use by improving irrigation facilities, also requires a high input of labour. The construction and maintenance of a canal irrigation system from the perennial river, which is some distance away, would only be feasible, if all or most of the households were to participate in this scheme (better water management by a canal system from a perennial river for paddy cultivation is a crucial factor for higher and more secure yields). Households, which currently cultivate land belonging to other households, as will be shown in chapter 4.4.1, are not interested in investing labour in fields which are not their own.

The fact that there are viable economic alternatives for obtaining an income from wood selling and wage labour, also reduces incentives for investing in additional agricultural labour.

With a view to the agrarian situation in the area, it is clear that there is a need for other sources of income, to compensate for the local deficit of rice. Thus, many households sell wood because they do not have access to enough land, or because they have access to land only with low labour and land productivity.

However, the quality of, and access to, agricultural land does not alone determine the involvement of the local population in other economic activities. In both villages cash income is also required for basic needs other than paddy. This is elaborated in chapter 4.2. Like among many smallholders, spreading labour inputs over the year is also an efficient economic strategy followed by the villagers. The scarcity of wage labour, together with a similar return to labour for wood selling and wage labour, makes wood selling a viable option for many households. Moreover, wood selling in contrast to wage labour, is an option that is available throughout most of the year. There is a demand for fuelwood and timber from both the villag-

ers on the plain and the townfolk, as it is either difficult or impossible for them to obtain fuelwood and timber from the distant forests.

4 PEASANT STRATEGIES

After having presented the various economic activities and their conditions together with quantitative data for the two villages under study, the next step is to analyse the options and strategies of households with regard to their economic activities.

4.1 Household types and economic performance

The size of a household, its consumer/producer ratio, composition of male and female members and the type of household as the central unit of production and consumption depend upon various factors such as the birth and death rate, marriage patterns, age of marriage and timing of separation of family members. The household does not control some of these aspects, whereas others may result from decisions and behaviour of the various household members.

The economic performance of a household is interlinked with its availability of labour and its access to land, forest and wage labour. Here I will focus on the issues of firstly, the type of household that would perform most efficiently under the given conditions of access to land, forest and wage labour and secondly, whether the households in the two villages follow the strategies necessary to adapt to these conditions.

If access to land is not limited, larger households could be a viable option for the peasants. Land in such a case is not a factor that limits the size of a household, as the cultivated area can be adapted according to the size of the household: the larger the household, the larger the cultivated area. Furthermore, the pooling of labour in large households with a favourable producer-consumer ratio makes sense, if the labour input required for the cultivated area is rather high, as is the case with the type of shifting cultivation practiced in Upper Kansa. The tasks of preparing, weeding and harvesting of 2nd year swidden fields in particular, all demand a high input of labour (see table 9). To have access to a larger pool of family labour is advantageous – it is true that there are forms and possibilities of an exchange of labour between households, but these are mostly based on balanced reciprocity or external labour has to be paid. Moreover, during certain periods, access to labour from other (small) households may be difficult, as each household is busy working in its own fields. In addition, the loss of family labour due to sickness, death or marriage can be better absorbed in a large rather than in a small household. However, in order for a large household to become an economically efficient production unit, it not only requires access to sufficient land, but also a favourable consumer/producer ratio: this is either the case at a later stage in the nuclear family development cycle, or in the case of a joint or extended family. In addition to economic motives, another reason to opt for a larger household would be for political reasons; in a society where the head of a large household gains social status and political influence in the village community.

Based on these considerations, one could expect large, joint and extended households in Upper Kansa to be in the majority. However, this is not the case; the nuclear family is the dominant household type in this village as well as in Kodipasa. Under conditions of land scarcity, small households may be considered to be well adapted to the economic situation in Kodipasa, as many of the households have access to only a small amount of land. Various reasons for the dominance of nuclear households in both villages will be discussed, after the presentation of the household patterns of the population under study.

Table 37: The 20 Juang households in Upper Kansa (by type)

Household Type	Number	In %
Nuclear family	9	45
Sub-nuclear family with widow	2	10
Joint family	7	35
Widow single	1	5
Others (husband, wife, nephew, niece)	1	5
Total	**20**	**100**

In six of the seven joint families, one of the parents was widowed. In one case, the joint family consisted of a widowed mother, her married son and his children, plus the mother's sister-in-law.

Table 38: The 66 Juang households in Kodipasa (by household type):

Household Type	Number	In %
Married couple with no children	2	3.0
Nuclear family	24	36.4
Sub-nuclear family with widow	10	15.0
Joint family	23	34.8
Joint family with widowed son	2	3.0
Joint family with divorced son	1	1.6
Extended family	1	1.6
Widows single	2	3.0
Others	1	1.6
Total	**66**	**100**

In nine of the cases of joint families both parents were still alive, in fourteen cases the mother was a widow. The household under the category of "others" was composed of a husband and wife, their married nephew and the children of this nephew.

The only extended family in 1998/99 consisted of two married brothers; one of which had just married. In 2003 they were going to divide their household into two.

Table 39: The 28 Munda households in Kodipasa (by household type):

Household Type	Number	In %
Married couple with no children	1	3.6
Nuclear family	15	53.5
Sub-nuclear family with widow	1	3.6
Sub-nuclear family with widower	1	3.6
Joint family	7	25.0
Single (unmarried man)	1	3.6
Others	2	7.1
Total	**28**	**100**

In four of the seven joint families the mother was a widow, in three cases both parents were still alive.

The category of "others" included two households: one of which consisted of a couple plus the unmarried brother of the husband and the other of a widow plus the son of her late co-wife.

Table 40: The 16 Gouda households in Kodipasa (by household type):

Household Type	Number	In %
Nuclear family	11	68.75
Sub-nuclear family with widow	1	6.25
Joint family	4	25.00
Total	**16**	**100**

In three of the four joint families the mother was widowed.

Table 41: The 6 Santal households in Kodipasa (by household type):

Household Type	Number	In %
Nuclear family	3	50.0
Sub-nuclear family with widower	1	16.7
Joint family	2	33.3
Total	**6**	**100**

Thus, in all of the ethnic groups, the nuclear family was the most common household type followed by the joint family. There was only one extended family in 1999. In all the groups there is a pattern of sons separating from their family rather soon after marriage and settling down in their own household. They are given part of their share of land and become independent householders. Parents will eventually live with one of their sons, his wife and their offspring. Daughters, despite being valuable labour within the family, are married at an early age. This pattern tends to keep the families relatively small.

In a joint family a favourable consumer/producer ratio within the household can be reached if the separation of married brothers from their father's family takes place at a late stage and the unmarried brothers and sisters are already of an age when they can contribute their labour towards the family income. However, usually when the second brother marries, or even prior to this, the joint family separates. Thus, large joint families are rare and short-lived and most joint families consist of a nuclear family with the parents of husband or wife and in many cases with only one of them; although joint families, these households are rather small.

The pattern of early fission of the family among Juang shifting cultivators has already been documented by McDougal and is confirmed by this study. McDougal attributes the centrifugal forces behind this separation to the following three structural factors:

1) Intra-household tension, especially between fathers and sons as well as among brothers, and to some degree also between daughters-in-law and mothers-in-law.
2) The political system of the Juang gives full respect to independent male household heads only and thus drives married men towards family autonomy.
3) A Juang man that is married has access to land for shifting cultivation from the village community, which gives him economic independence from his father.

According to McDougal (1963:114) the family developmental cycle among the Juang does not usually follow the ideal of a married son remaining in his father's family for as long as his father is alive (a family type which is defined by McDougal as "extended family", but according to my definition as "joint family"):

> "Most males marry when approximately 20 years old, rarely before the age of 18 and occasionally not until their late twenties. A man does not deliberatley delay his son's marriage; on the contrary, he tries to arrange the union as soon as feasable, because an early marriage is prestigious. Nevertheless, the payment of bridewealth places a heavy economic burden on the family, and poverty or a series of bad harvests may make

> delay unavoidable. If the ages of two sons are close, the marriage of the younger one may be unduly postponed while the family is recovering from the economic strain caused by the payment of the first son's bridewealth, but this should not be overemphasized – the more sons a man has, the more he is able to produce. (...) A man is usually at least 45 years old by the time his eldest son marries; he has a life expectancy of from 60 to 65 years. Therefore, if there is conformance with the ideal, a newly married man faces the prospect of 15 to 20 years as a subordinate member of his father's family. During this period he is denied full social status in the community, which is possessed only by heads of independent families; moreover, in a formal sense, he occupies a subservient position in the family."

In practice, however, larger family groups break down into their component conjugal units at an earlier stage. McDougal (1963:116) attributes this to a "basic divergence of interests" between father and son:

> "Within the extended family unit [i.e. joint family, N.O.], resources, goods and services are pooled. In theory the father has ultimate authority in all family matters – economic, ritual, and political – and the son has no independent rights. In practice a man consults his son about decisions and expenditures concerning the family unit. Nevertheless a basic divergence of interests develops. The son's orientation is focused on the eventual establishment of independence and the acquisition of full adult status; he becomes resentful in his subordinate role in the family and in the community. On the other hand, the father wishes to retain his son in the family, both in order to utilize the son's economic services and because it is prestigious to be the head of an extended family. As the father grows older the son increasingly does more than his share in economic production; the returns which he realizes from the production would be greater in his own independent family. On the other hand, his father is increasingly dependent on his son. At this point some strain develops in the relation between father and son."

As the father grows older and the son demands a greater say in the management of family affairs, the father's ability to exercise authority diminishes. Finally, a son who remains in the family, until the death of his father, becomes a de facto household head. If a man is the elder of two or more brothers, it is easier for him to separate from his family. His younger brothers remain with their father and continue to work with and for him. However, "most married men do not establish independence until they have children of their own and until their younger brothers have obtained spouses" (McDougal 1993:152).

Parallel tensions between a daughter-in law and a mother-in-law add to these centrifugal forces. A daughter-in-law increasingly resents having to do heavy domestic duties for the family of her husband.

Once a household splits into two, there is "very little if any economic co-operation between father and son (...). Each family tends to develop its own particular set of co-operative economic relations with other families" (McDougal 1963:120).

Similar tensions exist between married and unmarried brothers[33] or elder married brothers and younger married brothers and their wives in the case of the death of their father. The authority of the eldest brother, who according to the Juang "is like the father" is put into question by his younger brother(s) who try to become independent as soon as possible. Elder brothers are expected to support their younger brothers to get married and until such time when all of the unmarried brothers have spouses, the elder brothers are expected to remain together. However, the extended family is a temporary unit, which lasts for some years only. Of the thirteen villages studied by McDougal in 1960-62, he found that of the 83 married men, which had a married elder brother, only 16.7 per cent of these lived together as an extended family. Again, once separated, there is little cooperation between the households of brothers, if at all.

[33] Among the Juang, men are expected to fully contribute their labour after marriage only.

The strategy of the pooling of labour in large households, under a system of shifting cultivation, would make sense from an economical point of view; the more people that are available, the more land can be cultivated and as has been shown, shifting cultivation implies many labour intensive activities over considerable periods, especially for the cultivation of paddy. If the availability of land is not a limiting factor, households could improve their economic situation by following a strategy of having many household members. This brings several advantages in comparison with smaller households. Although small households can mobilize additional labour from other households, such cooperation is usually on a reciprocal basis; whatever help they get from other households will either have to be paid for or returned. Moreover, the availability of labour from other (small) households during peak labour periods is limited, as each household is busy with its own fields. Loss of labour within a household, due to sickness, death or marriage can be more easily compensated for in a large rather than in a small household.

Moreover, to be head of an extended family carries prestige and may enhance the political influence in the village. Thus also from a political point of view, large households are advantageous, at least for the household head.

It appears, however, that the social costs among individual family members and especially between male members, for organising steady working and cooperating relationships are too high to opt for large households. Together with the other two aspects mentioned by McDougal (the incentive for males to marry and therefore to gain independence and increase their social status along with the easy access to land for shifting cultivation) this results in conditions, which are sub-optimal from an economic point of view. It also restrains the formation of large and enduring households with more political weight in the village community over longer periods. To summarise, the young Juang males prefer the social and economic independence gained from being the heads of small households, at the expense of prestigious elder Juang as heads of larger households that cultivate larger areas.

The additional options of income generation by means of wood selling and/or wage labour enhance centrifugal forces in the household. Given the fact that returns to labour from these activities, are reasonable when compared to returns to labour from shifting cultivation, a combination of various economic activities makes economic sense. The options of selling wood and being employed as wage labour allow for a reduction in the amount of land required for shifting cultivation. Thus, the argument that having a larger pool of labour for agricultural production is advantageous, no longer holds in the context of a mixed economy.

In the case of the Juang of Kodipasa, the third factor of having easy access to land for cultivation no longer applies, as they now cultivate permanent paddy fields, having given up shifting cultivation twenty to thirty years ago. Limited access to land controlled by fathers could function as a mechanism for them to keep their sons even after marriage dependent in order to control their labour. However, it appears that the fact that land is owned as private property does not result in changing Juang family patterns. Early separation still goes on and fathers generally cannot or do not keep their married sons as dependents, but instead give them a share of the land and let them establish their own households. There are two reasons for this: firstly, most of the Juang households in Kodipasa belong to the category of small and marginal farmers. When a household owns little land, the pooling of agricultural labour does not make sense: in this case rather the scarcity of land and not of labour is the economic problem. Moreover, as it has already been shown, labour productivity for permanent paddy cultivation increases in comparison to shifting cultivation. The second reason for the early fission of the family is the opportunity of economic diversification: having the possibility to sell wood

and/or carry out wage labour means that newly established households are able to manage even if they have little or no land.

If a married Juang son separates from his father's household, he will initially only receive part of his share of land. The household, which takes care of either the father or mother or both, will cultivate a larger share of the father's land, for as long as the parents live. Ultimate land distribution among brothers only takes place after the youngest brother marries and the father dies. Thus, the separation of a conjugal sub-unit, from the joint or extended household, is in many cases a process, which takes place over several years. It starts with a joint or extended family pooling their labour resources for cultivation. The yield is shared according to the needs of all of the family members. Income derived by the conjugal sub-units from other labour such as wood selling and/or wage labour is retained and controlled by those units. The responsibility for purchasing items such as oil, salt, soap, cloth and additional rice lies with the conjugal units. In the next step land is divided, although the conjugal sub-unit does not yet get its full share. However, this now gives the new households full independence. After the youngest brother's marriage and the father's death, land is finally distributed equally among the brothers.

Thus, in the case where there is a small or marginal land holding and where there is only a partial share of a father's land, a new household will start with only a little land to cultivate. It is the scarcity of land and not labour that then limits any cultivation; wage labour and wood selling are therefore necessary as additional sources of income. On the other hand, they also enable a married son and his wife to separate from their original family. The economic performance of the nuclear family then changes, according to the size of the family, the changing consumer/producer ratio and its composition of male and female members.

The fact that it is possible to generate additional income from wage labour and wood selling, allowing for the establishment of small independent nuclear households, does not necessarily make these households any more efficient than larger ones. The pooling of labour and income does also make sense where there is a scarcity of land and where there are mixed economic activities: the pool of available labour can be assigned to various activities (while wage labour is seasonal and sometimes scarce, wood selling is an option which is open to everybody for most of the year). Variation in the consumer/producer ratio, due to unforeseen incidents (births, deaths, or sickness of household members) can be compensated for by other household members.

Small households are vulnerable socio-economic units; if any of the working members of a household are sick or die, this immediately affects the economic situation of the household and the degree of flexibility with regard to various economic options is lower than in larger households. In addition, a small household may lack the opportunity to sell wood during the farming period, as all the family labour is involved in farming. Another disadvantage of a small household is that if the husband was to die, leaving only small sons, or no sons at all, then the task of ploughing cannot be undertaken. Even keeping goats could become a problem for a small household, as the grazing of goats interferes with other work.

Cooperation in a large household requires a high degree of familial cohesion and/or an authority that controls the family members and their income and makes them work. The factors that work against the principal of pooled labour and income in large households are: problems of free riding and the lack of incentives for individual household members to contribute their labour to benefit the household as a whole, together with the usual sources of conflict that exist in joint and extended families.

Household types and family development cycles among the other groups in Kodipasa show similarities in comparison to the Juang.

Among the Munda, the nuclear family is also the predominant type, followed by the joint family. There were no extended families in 1998/99. Although the ideal is that the family will not divide until the youngest son is married, Munda men may separate from their family even if they have unmarried brothers. As with the Juang, they will only be given a part of their final share of land. The parents will keep the remaining share and distribute part of it among the unmarried brothers in order to arrange their marriages. After their marriages, the remaining land will then be shared equally among all the brothers. In the case of joint families, pooled labour is used for the purpose of land cultivation. As with the Juang, conjugal subunits have independent control over any other income and are responsible for expenditures of their individual household. If brothers remain together until the youngest of them marries, any land is then shared equally among them, in the presence of several of the villagers.

Santal households are composed of either nuclear or joint families, where in theory, separation of the family unit does not take place until after the marriage of the youngest son; in practise this is not always the case. Married sons will be given part of their share of land; their unmarried brothers together with the parents will keep a larger share of land until all brothers get married. Then all land is equally distributed among all of the brothers. The parents will, however, keep some land for themselves, which they will either cultivate for themselves, or if they stay with one of their sons, then this land will be added to the son's share. After their death this land will again be distributed among all of their sons.

Among the Gouda there is the same ideal as among the Juang, Munda and Santal; sons and brothers should separate after the marriage of the youngest son and brother, although there are not enough cases to check how far the practice follows this ideal.

The fact that in all of the groups the nuclear family type dominates, contradicts the ideal of joint and extended families. It seems that tensions among members of joint and extended families outweigh the perceived advantages of larger families as units of production and consumption; tensions with regard to everyday affairs of domestic rights and duties, labour contribution for cultivation and/or other economic activities, issues of authority and respect and interpersonal relationships. The transaction costs involved in organizing a joint or extended family may be too high to keep households composed of more than one conjugal unit together over a long period. An early split of joint or extended families also reduces the risk of its members to freeride by not contributing their fair share of labour.

If and for how long a joint or extended family holds good depends, last but not least, upon the personalities of its members, the capacity of the household head to control the labour of his family, and on their access to land. The following two case studies illustrate the combination of factors, which result in the good economic performance of two rich households in Kodipasa: the richest household among the Juang and one of the most affluent households of both of the villages; a Gouda household.

The richest Juang household in Kodipasa:
The father of the household head was the owner of a lot of *bila* and *toila* land in the 1960s and 1970s, before land was officially settled in the Juang area. He cultivated this land using wage labour from some other Juang households. During the settlement he lost part of this land, but due to his office as a *sarpanch* (political head of several Juang villages) and the fact that he maintained good relations with the settlement officer, he still managed to secure more than five hectares, which was registered as his private land. As he had only one son, this son inherited all of the land. Unlike other Juang who were rich in land, this son did not transfer land by sale, lease or mortgage over the following years, when the demand for land increased. Like his father, he cultivated his land by means of family and wage labour. To cultivate *bila*

land by using wage labour pays, at least in good years and as long as enough surplus can be produced to pay wage labour in addition to feeding the household members. However, the larger his family got and the elder his children became, the less wage labour he employed.

The family structure of this household in 1998 illustrates a point in the familial development cycle, at which the advantages of large families become apparent: at this point in time this household had seventeen members. It was the only polygamous household in the two villages. It consisted of a husband, two wives, two married sons and their wives, five daughters above the age of fourteen (one handicapped), two small daughters, two small sons and one married daughter with her baby. Thus, most of its members were of an age at which they could contribute fully or considerably towards the cultivation of the household land. The household had sufficient males for ploughing and females for weeding the paddy fields. The consumer/producer ratio was 1.27. The family was cultivating 5.26 ha paddy land, i.e. 0.3758 ha per consumer. Only a little additional wage labour was used. The household had produced enough rice in 1998 to feed the whole family, although this was a bad year. Rice was distributed throughout the joint family as per the needs of its members. The household also had some additional assets: in 1999 it owned ten cows, six bullocks and eight water buffaloes – more cattle than anybody else in either of the two villages. The sale of milk from the water buffaloes and the sale of cattle in times of need provided the household with cash income. A small shop run by one of the sons was also a source of income.

The household head had been a *sarpanch*, like his father, for several years. He was a priest and also a respected elder in his village as well as in his family. His sons obeyed him and contributed their labour to the farms, both before and after marriage.

In 2003 this family still functioned as a joint family, with regard to cultivation, and the two married sons had not yet separated from the family household. However, both of them had now their own kitchen, i.e. they were responsible for all the household needs (with the exception of rice) and they disposed of any additional income from their own and their wives' labour. They still had two unmarried brothers and whether this joint family would divide before or after the marriage of the youngest son, who was ten years old in 2003, was not yet clear. The land will be divided into equal shares only after the last son's marriage and the father's death. If any of the married sons separates from the family household, prior to either of these events taking place, he will receive only part of his final share of land. Once this Juang family divides ultimately, the future of the sons will probably not be as bright as that of their father who as the only son of a family rich in land became household head with more than 5 hectares. If this land is one day divided equally among the four sons, each household will have only slightly more than one hectare of land after their father's death. However, this is still more land than the majority of Juang households own.

In 1999 the sale of wood and wage labour played a minimal role in the economy of this household. The daughters only rarely sold wood in order to provide themselves with clothes and small items, but not in order to buy rice. The sons occasionally worked as off-farm wage labourers in order to earn some extra cash for their own and their wives individual needs. There are several reasons why wood selling and wage labour play a marginal role for this family: working on their own land keeps the family members busy for considerable periods of time. Selling wood and doing low-skilled wage labour are not prestigious activities for families that consider that they belong to the wealthier households. As their basic needs are already covered, there is little incentive for them to work for low rates of return.

However, the significance of wood selling and wage labour probably will increase during the process of separation and definitive land distribution among the sons, and with their growing households. The need to obtain an income in cash in order to provide for the basic needs

of the family, requires a minimal amount of wood selling and/or wage labour, if there are no other sources of income.

The richest Gouda household:

Separation of the joint family in the case of the richest Gouda household, which was also one of the richest households in the two villages, took place in 2003. This was three years after the marriage of the second and youngest son. The elder, married son had remained in his father's house with his wife for more than ten years. In 1999, this household consisted of eight family members: father and mother, eldest married son with a wife and two children and finally a son and daughter, both of whom were unmarried and of an age that they could fully contribute their labour. The consumer/producer ratio was low over a considerable period (in 1999 it was 6:5, i.e. 1.2). The household cultivated four hectares of paddy land and was more than self-sufficient with rice as it cultivated 0.6745 ha paddy land per consumer. As with all Gouda households, it received additional income from the sale of milk, in this case from three cows. The household had four bullocks, which were used for ploughing. Furthermore it cultivated vegetables for sale on land that was irrigated by a well. It ran a small shop in the village. In 1999, the household head bought a paddy-peeling machine, which enabled the family to acquire additional income either in kind or cash.[34] It was the pooling of labour and the close co-operation within the family that allowed them to pursue this mix of economic strategies. The lack of labour from within the family to perform all the various activities was compensated for by the use of wage labour, mainly for cultivation purposes. It makes sense, financially, to use wage labour for paddy cultivation and family labour for other economic activities.

Neither wood selling nor wage labour were carried out by any of the household members. Both activities are not considered appropriate for higher-ranking Gouda families.

At the point of separation in 2003, the family property was shared among the three conjugal units: father and mother, elder son and wife and younger son and wife. Both their private and encroached land was divided among the three units. The eldest son got a slightly larger share of land than did his brother because "he has cared for a longer time for his parents and has given more labour to the farms", as his father explained.

Leased land and land of some Juang households which they were holding in pledge was cultivated jointly and the harvest was divided among the three parties. Cattle and the vegetable garden were divided by equal shares among the three units. One of the sons was given the small shop, while the other son was given the peeling machine; the monthly income from both of these was approximately the same. When the parents are no longer able to manage their own household, they will join one of their sons with all their property. After their death, this share will be equally divided among both of their sons.

Thus the separation took place at a point when the two sons could be provided with good basic equipment, enabling them to earn an income in cash from the sale of milk and vegetables, from running the shop and from the use of the peeling machine. By becoming independent households, no longer having access to the previous large pool of family labour, the use of wage labour for the purpose of paddy cultivation and probably for other work as well, will continue to be necessary. The efficiency of the three separate households will probably decrease in comparison to the efficiency of the joint family. On the other hand, the incentive for individual family members to work even harder may increase, as the fruits of their labour would only be enjoyed by their small nuclear family.

[34] Customers paid with rice or cash for having their paddy peeled.

In comparison to the richest Gouda household, the richest Juang household cultivated less land per consumer in 1999, as the family was much larger: seventeen members as opposed to only seven. However, the consumer/producer ratio of the Juang household was only slightly higher: 1.27 as opposed to 1.2 in the Gouda household. Conversely, the available land per consumer was less: 0.3758 ha in the Juang household compared to 0.6745 ha in the Gouda household. There was less of a surplus of paddy in the Juang household than in the Gouda family and thus there were less means to pay for wage labour. This meant that most of paddy cultivation was done by the household members themselves; this kept them busy for nine months of the year. However, because they had an adequate amount of land and family labour, they managed to be self-sufficient with rice.

The scarcity of labour in the Gouda family had been compensated for by the use of wage labour for the purpose of cultivation; allowing them time to invest their own labour in other economic activities. Another reason for the use of farm wage labour in this particular family was social prestige: keeping women inside the compound and away from the fields, is considered prestigious among the higher-ranking Gouda. Women in this household worked for the production of vegetables just behind the compound, but not on the paddy fields.

In both households, the household heads had considerable authority over their family and managed to keep their married sons as part of their family unit for several years.

These two cases illustrate successful household strategies with regard to economic efficiency. If larger households manage to keep the family members together over a long period of time, when there is a favourable consumer/producer ratio, it is economically advantageous in comparison to small families – provided that there is sufficient land to be cultivated.

Intra-household relations of household members are also of importance. My general impression of the Gouda households was that families were characterised by a stronger unity in comparison to the Juang and Munda households. The Gouda household heads have more authority over their offspring and control, to a large degree, their contribution of labour, be it for cultivation, grazing cows or other activities. At least among the higher-ranking Gouda, the households strive to improve their economic situation by a mix of strategies and all of the members contribute together in these efforts. In the four year period, between my field research in 1998-1999 and 2003, several of the Gouda families had substantially improved their economic situation, and all of the others had at least maintained their standard of living.

The pooling of income is less prominent in Juang households, where individuals dispose of their income with more autonomy than the Gouda, although it is expected that they support the household.

Furthermore there are differences with regard to the contribution of labour by the men, women, girls and boys. The Juang boys enjoy considerable freedom until they marry, in comparison to their sisters. After marriage, men's labour contribution increases. However, the Juang men still enjoy more leisure time than the women. Among the Gouda, boys contribute their labour to the household, at an earlier age then Juang boys. After marriage they strive to improve their economic situation; more time is spent on economic activities rather than on social, ritual and political activities, which are highly appreciated by the Juang men. On the other hand, higher-ranking Gouda women are less involved in productive activities than the Juang women. The Santal and Munda men contribute more labour to the household than the Juang, but the Munda and Santal boys still enjoy more leisure activities than the Gouda boys. The Munda and Santal are not biased against women performing wage labour and selling wood, as are the higher-ranking Gouda. Nevertheless, the Munda and Santal women are less involved in these activities than the Juang women.

Although intra-household relations are partly related to different norms and values of the various ethnic groups, there are examples of strong and weak cooperation among household

members in all of the groups and the case of the richest Juang household illustrates strategies and behaviours expected mainly from the higher-ranking Gouda.

4.2 Mixed strategies

The majority of households obtain their income by a combination of agriculture, wage labour and wood selling. This mixed economy results from various factors; the scarcity and low productivity of land combined with environmental risks, the opportunity to obtain an income during the agricultural slack season and the need for cash.

The combination of the three main economic activities, reduces the risks linked to agricultural production, smoothes labour input over the year and increases household income.

Table 42: Number of households involved in various economic activities

Economic activities	Agriculture only	Wage labour only	Wood selling only
Kodipasa	10	3	0
Upper Kansa	0	0	0
Total (% of all households)	**10 (7.4%)**	**3 (2.2%)**	**0 (0%)**

Economic activities	Agriculture and wage labour	Agriculture and wood selling	Wage labour and wood selling	Agriculture, wage labour and wood selling	Other
Kodipasa	14	10	8	70	1
Upper Kansa	0	3	1	15	1
Total (% of all households)	**14 (10.3%)**	**13 (9.6%)**	**9 (6.6%)**	**85 (62.5%)**	**2 (1.5%)**

Although it is possible for them to survive without producing their own food, very few households (8.8%) eke out their living only by means of wood selling and wage labour or by wage labour alone. Living from hand to mouth, without having paddy in reserve, is not considered a good life. Wage labour in the majority of cases is irregular and unreliable and wood selling is hard work and carries the risk of being caught by the foresters. Returns to labour for wood selling and wage labour are lower, at least in comparison with the cultivation of paddy in permanent fields (*bila* cultivation) in a good year.

Thus, almost all households (89.8%) cultivate some land. To harvest paddy, pack it in bundles and store it in the house, even in small quantities, gives people a feeling of security.

However, the scarcity of land for most households, together with the low productivity of land and high environmental risks, calls for additional sources of income, be it wage labour and/or wood selling in order to buy additional food. Labour and land productivity of shifting cultivation are even lower and the environmental risks higher than for permanent paddy cultivation. Thus, the combination of shifting cultivation and wood selling and/or wage labour is a rational economic strategy even when access to land is not a limiting factor for cultivation as it is the case in Upper Kansa.

Only 7.4% of all households in 1998/99 focused exclusively on agriculture.

Moreover, wage labour and the sale of wood are the means by which cash income can be earned in order to provide the household members with basic needs other than paddy. Even households producing enough paddy for their own consumption still require an additional income in cash. Weekly household expenditure is approximately 50 Rs. for the average family of two adults and two to three children. Such minimal expenditure includes the purchase of vegetables, salt, oil, spices, tobacco, soap and *handia*. Poor families may spend less than this

amount, whereas wealthier households may spend more. The average annual household expenditure is in the region of 2600 Rs. per year.

Additional cash income is required in order to buy clothes. The annual cost of clothing is in the region of 500 Rs. per adult and 250 Rs. per child. The cost of clothing an average family, of two adults and three children is in the region of 1750 Rs. per year.

Thus, approximately 4350 Rs. per year, or 360 Rs. per month, (i.e. the sale of nine or ten bundles of wood for 40Rs. per bundle, or nine to ten days wage labour per month) is required in order to provide the average household with its minimal basic needs. Not included in this budget are exceptional costs for weddings, funerals and medical care. Also not included are the additional costs for the extra consumption of alcohol and for the purchase of consumer goods above the minimal basic needs.

Whether wood selling and wage labour are carried out in order to improve the living standard above the level of minimal basic needs is an interesting question. It is an option to households with free capacity to sell wood and/or to do wage labour in addition to that required for basic needs. Obtaining accurate data for the various households on the numbers of days per year, that were spent wood selling and/or being employed as wage labour was impossible, as households keep no records of the time spent in these activities, and the work itself is irregular. Nevertheless, based on my field experience, free labour capacity is not necessarily used to maximize income and improve the living standard above a moderate level. This can be partially explained by the low returns to labour for wood selling and unskilled wage labour; too much drudgery for too little money. Instead of improving their material standard of living, leisure time is enjoyed, especially by male members of the households. Young and unmarried women may do extra work in order to buy some luxury items such as special saris and blouses or even small gold jewellery.

Agriculture does not keep the farmers busy throughout the year. During slack periods in the agricultural calendar, there is more time available for other work. To be employed as wage labour and/or to sell wood during the agricultural off-season makes sense as a strategy for diversifying economic activities throughout the whole year. Most households, which require additional rice, explicitly follow the strategy of buying rice in the agricultural off-season, even if they still have some paddy from their last harvest. They know that during work on their own fields, they will have little or no time available to go to the forest and/or to do wage labour. Thus they try to maintain as much of their paddy stock as possible for as long as possible.

Finally, the mixed economy of most households is emphasized by the fact that at least among the tribal population (Juang, Munda and Santal) neither farming, wage labour, nor wood selling are strictly gender specific activities. This enables a high degree of flexibility between the various economic activities of the household members.

Based on the analysis of agriculture, wage labour and wood selling so far, this strategy of a mixed economy is not surprising. Overall it is an efficient and rational set of behaviours, exhibited by other smallholders under similar conditions (Netting 1993). However, if considered under aspects of gender and ethnic membership, the economic performance of individual households and of households of the various ethnic groups reveals factors, other than economic ones, that influence economic behaviour, as will be shown in the following subchapters. These factors are: the bargaining power of household members, gender ideologies, aspects of social status and cultural identity. They broaden or limit the economic options and thus are determining factors of economic strategies. Moreover, the economic performance of a household is also the result of the behaviour of its individual members. This result is not necessarily the outcome of the combined efforts of all of the able household members to optimise household income.

4.3 Gender aspects

Gender aspects are interlinked to aspects of tribe, caste and social status. Because the majority of the population under study belongs to the tribal groups, the following statements about gender aspects mainly refer to the tribal population, with the Juang population being in the majority. In Gouda households the situation is quite different, as will be elaborated in chapter 4.4.

In many households, women contribute as much or more work than men towards agricultural production. In many households they are also more involved in farm wage labour and wood selling and they contribute more to the family income by these activities than the male members of the family. However, their economic contributions do contrast with the fact that they have less bargaining power than the men. This is partially linked to a dominant gender ideology, which demands that women start work at an earlier age than men, and adopt a more dutiful approach to work, whereas the men are admitted more free time for social, political and ritual activities. It is also linked with the weak 'fall-back position'[35] of women with regard to land in the case of non-shifting cultivators and with their dependence upon men for ploughing. The threat of physical violence towards women, which is mostly connected with the consumption of alcohol, makes them vulnerable to pressure from the men. Moreover, interventions by non-household members into domestic conflicts are rare and women do not necessarily get support from outsiders. Nevertheless, a certain degree of autonomy is linked to the many economic activities that the women perform: the mobility of women who are employed as wage labourers and who sell wood is greater than for women restricted to the domestic domain. Moreover, women that earn a cash income do have some control over it.

In the next chapter it will become clear that gender relations vary among the various ethnic groups and so does the relative contribution of men and women with regard to agriculture, wage labour and wood selling.

4.3.1 Gender and agriculture

The majority of men and women are involved in agricultural production for their own household. Men and women perform different tasks in the process of cultivation, but not all of the work is gender specific. The percentage of women involved in agricultural production is slightly higher than that of men, which can partially be explained by the fact that more men than women are employed as off-farm wage labourers.

Table 43: Male and female involvement in agriculture

	Total adults	No. of adults in agricult.	In % of all adults	No. of M adults	No. of M adults in agricult.	In % of M adults	No. of F adults	No. of F adults in agr.	In % of F ad.	% of M of all adults in agricult.	% of F of all adults in agricult.
Kodipasa	369	327	88.6	173	148	85.5	196	179	91.3	45.3	54.7
Upper Kansa	62	59	95.2	26	26	100.0	36	33	91.7	44.1	55.9
Both villages	**431**	**386**	**89.6**	**199**	**174**	**87.4**	**232**	**212**	**91.4**	**45.1**	**54.9**

M: male
F: female

[35] A person's 'fall-back position' as an important factor of his or her bargaining power refers here to the outside options he or she has if cooperation within the household would cease (see Agarwal 1998:54). It is a concept elaborated by Amartya Sen to analyse conflicts and cooperative arrangements.

Based on my general observations in the two villages, women tend to spend more time working on their farms then men, with the exception of the few households that use farm wage labour in order to raise their social status. That the majority of women contribute more labour towards agricultural production than men, results from the fact that women are expected to make a greater contribution and start work an earlier age. While in many households daughters are expected to contribute fully to the family income from about the age of fourteen, sons are expected to do so only after marriage. Most boys and men enjoy more leisure time than girls and women and if any work can be delegated to the female household members, the male members are tempted to do so. In many cases, the men are happy to reduce their own labour efforts at the expense of their wives, daughters, mothers or sisters. To have a large number of female household members is therefore an advantage. However, a household with little or no male labour available for ploughing or clearing the forest is restricted in its agricultural activities. Thus, many widows with small sons or no sons at all, do not cultivate their land.

In households where there is little land to cultivate, there is more scope for delegating the agricultural work to the women, than in households where there is more land which demands a higher and more coordinated labour input from all the available members.

Labour intensive tasks of paddy cultivation such as weeding are perceived to be mainly women's work and demand more labour from the women than from the men, while most of the other work, with the exception of forest clearing and ploughing – is carried out by both men and women.

The economic performance of a household partially results from the bargaining power of the various household members. Good cooperation and coordination among male and female members, with regard to agriculture, helps to strengthen the man-made factors of agricultural production, whereas conflicts between individual household members have a negative effect on agricultural production. Conflicts between men and women can be about the contribution of labour, as the following statements from a Juang husband and wife illustrate:

> "My husband is my paid workman. If I do not give him money, he will not plough." Sita Juang, wife of Gouranga Juang
>
> "I have to beat my wife, otherwise she will not give me money. But she is living on my land and that's why I have a right to get money from her. If she will not give me money, I will not plough." Gouranga Juang, husband of Sita Juang (while drunk)

In the above statement, the husband argued that not only did he own the land that his family lived on, but that he had the right to claim any income earned by his wife and daughter, and that he could spend that income at his will; mainly on *mahul* liquor. He also boasted that he had sold, mortgaged[36] or leased the bulk of his land, and spent the proceeds as he had liked. The son of this couple, despite being an able-bodied young man, refused to plough: he accused his father of having transferred land, drinking too much and failing to make marriage arrangements for him. Neither his father nor his mother was able to force him to work. In such a case, it may be that not all of the land available is cultivated, or it is not cultivated in time. It was Sita Juang (the wife) and her eldest daughter who bore the economic consequences; they combined all the economic activities possible in order to provide enough rice for the household.

Another case, related to a Juang widow, who had two daughters and two sons. The eldest son refused to plough the fields belonging to his mother. He preferred to hang around with

[36] To mortage land here means to give in pledge land for a credit: the landowner (mortgager) gets back his land only after having paid back the credit. The mortgagee, i.e. the person who has given money to the landwowner, will cultivate the land of his debtor as long as he does not get back his money.

boys of his age and to drink and accused his mother of not looking for a wife for him. Thus his mother had to pay male wage labour in order to cultivate paddy with her two daughters, as the second son was still too small to plough. All of the work, in this example, was carried out by the females of this household, who in addition fed their non-cooperating son and brother by combining agriculture, wage labour and wood selling.

The bargaining power of women in such situations is rather weak. An option, for a woman who has an irresponsible husband, would be to refuse to cook for him. However, in a case such as this, where a woman protests, the man may react by using physical violence towards her, although this mostly happens when the man has been drinking alcohol. To leave her husband temporarily and to visit her relatives in her native village, or even divorce him are the most serious consequences a woman may draw from being treated unfairly. However, if she leaves forever and returns to her own family, she will bear the main responsibility for her children and contribute her labour towards the household in which she lives. Again she will depend upon other men to do the ploughing for her. Moreover, she may not receive any land for her and her children, except if she were to reside in a village with shifting cultivation. Of course, a man left by his wife and daughters who maybe were already working, too will face serious difficulties and thus he will try to bring back his wife.

One consequence for a non-cooperative son could be the delay or refusal of marriage arrangements by his parents. In both of the cases mentioned above this formed part of the conflict. To arrange a marriage requires the cooperation of both of the parents of the bridegroom, and even if the father is dead the mother will continue to play her role. Moreover, a marriage requires the cooperation of all of the family members in order to provide the necessary cash, goods and services. The mother, as well as the sisters of a non-cooperative son and brother, will be less inclined to assist him to get married. Thus his non-cooperation will cost him personally. However, his disadvantages do not minimise the economic consequences and costs of his non-cooperation which all the other household members have to bear.

The fact that there are opportunities for obtaining an income, other than by agricultural production on their own land, makes the women, as wives, mothers and sisters to bear the consequences of husbands, sons and brothers who do not cooperate in agricultural production: either they fulfil the demands that the men make for their labour contribution, or they compensate for the agricultural loss by other sources of income. From a male point of view it may be profitable to let the women provide the majority of the basic needs of the household by means of wage labour and wood selling; although returns to labour may be higher for agriculture than for other activities. Less agricultural activities result in the need to go for more wage labour and/or wood selling: as both of these can be done by women, the costs of neglecting agriculture can be placed on the shoulders of the female household members.

Decisions about matters of land are another issue of bargaining power between men and women in a household. To transfer land by lease, mortgage or sale has consequences for the agricultural production of a household. In some cases both the husband and wife make joint decisions about the transfer of land. However, it is possible for a husband to transfer land, without consulting his wife, and use the proceeds for his personal needs, in many cases for the purchase of alcohol. As men are usually the legitimate landowners, women are in a rather weak position to prevent their husbands from transfering land. Again, it is mainly the women who bear the consequences of the loss of land, by having to increase their input of labour in other activities, be it wage labour and/or wood selling. Widows however, do control the land of their late husbands, for as long as their sons remain unmarried. Thus, in the case of the non-cooperative son of the widow mentioned above, he would not be able to transfer any land of his late father, and nobody in the village would accept land from his family without the consent of his mother.

These and other cases experienced during field research hint at the possible imbalances of economic gender relations within the household, which are usually at the expense of the women. But the spectrum of household realities is wide; from households with men and women cooperating with regard to all agricultural activities and decision making to households characterised by conflicts and non-cooperation. Moreover, as a household changes in the course of a family's developmental cycle with regard to the composition, age and status of its members, gender related situations also change.

In cases where there is good cooperation between the men and women, together with the willingness of the men to contribute their full labour to the household, this results in a better economic performance of the family as a whole. However, in cases where there is non-cooperation and a low input of labour on the part of the men, the costs are mainly paid by the women of the household.

4.3.2 Gender and wage labour

Farm wage labour:

The fact that women are more involved in agriculture than men, is also expressed in their significantly higher contribution to farm wage labour:

Table 44: Male and female involvement in farm wage labour in 1998/99

	Total adults	No. of adults in farm wl	In % of all adults	No. of M adults	No. of M adults in farm wl	In % of M adults	No. of F adults	No. of F adults in farm wl	In % of F adults	% of M farm wl of all farm wl	% of F farm wl of all farm wl
Kodipasa	369	153	41.5	173	51	29.5	196	102	52.0	33.3	66.7
Upper Kansa	62	18	29.0	26	3	11.5	36	15	41.7	16.7	83.3
Both villages	**431**	**171**	**39.7**	**199**	**54**	**27.1**	**232**	**117**	**50.4**	**31.6**	**68.4**

M: male
F: female
wl: wage labour

As mentioned previously, the burden to provide the household with additional paddy, in many cases, is not equally shared among the male and female members of a household. A further reason for the uneven contribution of male and female farm wage labour, is the higher demand for female farm wage labour for labour intensive activities such as transplanting and weeding. In addition, women are paid less than men, whether it is in cash or kind.

Farm wage labour is mainly carried out in neighbouring villages. Thus, farm wage labourers leave in the morning and return in the evening. Girls from the age of twelve up to relatively old women can contribute to the income of their families by farm wage labour. Only nursing mothers usually do not work as farm wage labourers.

Men are more involved in long-term agricultural wage labour. They work as herders, either in their own village or away from home. In most cases these are young and unmarried men.

The fact that both the women and men of Upper Kansa are less involved in farm wage labour than the villagers of Kodipasa can be explained by their higher involvement in wood selling. Being closer to the fuel wood and timber resources in the forest and more distant from the villages on the plain, where there is demand for farm wage labour means that earning an income from selling wood is a viable alternative.

Off-farm wage labour:
Considerably more men than women earn some income from working as off-farm wage labourers. This can be partially explained by the higher demand for male workers, together with the fact, that work not connected to agriculture outside the village, is considered less appropriate for women. Off-farm wage labour sometimes requires the workers to be absent from home for several days or weeks. The fact that female household members are required to perform domestic work, in addition to their other contributions to the household, together with the ideology that women have to be more protected and controlled than men, makes them less suitable for off-farm wage labour. It is mainly the unmarried young women that sometimes work as wage labourers, if the work can be done near to their village, or if they can join working groups together with some male relatives or boys from their village.

An incentive for men to do off-farm wage labour as opposed to farm wage labour is the salary that they receive in cash. As it is their decision, to a large degree, what is done with this money, a salary in cash gives them more opportunities to follow their own personal interests, rather than a salary in kind which usually enters the household. Women too do have control over the income earned from wage labour. However, the pressure for them to contribute this income to the household is much greater than for men.

Table 45: Male and female involvement in off-farm wage labour in 1998/99

	Total adults	No. of adults in off-farm wl	In % of all adults	No. of M adults	No. of M adults in off-farm wl	In % of M adults	No. of F adults	No. of adults in off-farm wl	In % of F adults	% of M off-farm wl of all off-farm wl	% of F off-farm wl of all off-farm wl
Kodipasa	369	81	22.0	173	57	32.9	196	24	12.2	70.4	29.6
Upper Kansa	62	9	14.5	26	9	34.6	36	0	0	100	0
Both villages	**431**	**90**	**20.9**	**199**	**66**	**33.2**	**232**	**24**	**10.3**	**73.3**	**26.7**

M: male
F: female
wl: wage labour

4.3.3 Gender and wood selling

A considerable percentage of adult men as well as women from both villages sell wood:

Table 46: Male and female involvement in wood selling in 1998/99

	Total adults	No. of adults in ws	In % of all adults	No. of M adults	No. of M adults in ws	In % of M adults	No. of F adults	No. of F adults in ws	In % of F adults	% of M ws of all ws	% of F ws of all ws
Kodipasa	369	170	46.1	173	75	43.4	196	95	48.5	44.1	55.9
Upper Kansa	62	47	75.8	26	19	73.1	36	28	77.8	40.4	59.6
Both villages	**431**	**217**	**50.4**	**199**	**94**	**47.2**	**232**	**123**	**53.0**	**43.3**	**56.7**

M: male
F: female
ws: wood selling

But there are some gender specific differences, with regard to the frequency of wood selling and the use of its income. As they mainly concern the Juang, the following statements refer to

them. A discussion of male and female involvement in wood selling among the other groups follows in chapter 4.4.3.

More Juang women than men carry wood to the market and they do it more frequently. This is apparent at times when there are no agricultural activities either for men or for women. On several occasions, while climbing up the hill to Upper Kansa, we met a large group of women and girls coming down through the forest, with bundles of firewood on their heads, on their way to Keonjhar or to nearby villages. They all belonged to Upper Kansa. When we arrived up in their village, their husbands and fathers were sitting in the *majang*, discussing matters of marriage, death ceremonies and *pujas*. Or they were preparing for a visit to another village or were deliberating where they could obtain either a bottle of *mahul* or *handia* and tried to convince us to support them in their endeavour. While their sisters were carrying wood for sale, the boys went to the forest to hunt birds. The men's activities, at that time were definitely of more of a social rather than an economic nature in comparison to the women, who provided rice for the daily meal by selling wood. When asked, on that occasion, why they did not join the women, selling wood, they laughed and argued, that it was too hot for them today for such work or that they were busy with other matters. Obviously they found the drudgery linked to wood selling too much – which does not mean that it is less so for the women.

Income derived from wood selling is not necessarily household income, as wood sellers, male or female, dispose of the money individually. To a certain extent, the wood sellers can spend the income derived from their sales at will, although this is less so in the case of women. The pressure for them to provide their family with rice is stronger than for men and they take more responsibility in doing so. The women therefore contribute more to the household income by selling wood more frequently than do the men and by spending the bulk of their income for the household. For that reason wood selling is a double-edged affair for women: on the one hand it gives them a certain autonomy, as they are able to dispose of the money they get from the sale of wood. On the other hand this autonomy is very much restricted, due to the fact that providing food, i.e. rice, is of the utmost priority for most female wood sellers. This allows the men to rely on the income provided by the women and gives them the opportunity to profit from the responsibility that women take in feeding their family. In some cases it weakens their willingness to contribute their share to the household income, or even allows them to follow a strategy of reduced agriculture; to sell, rent or mortgage land is an option for a landowner, as reduced yields from his fields can be compensated for by increased wood selling activities on the part of the female household members.

Young and unmarried Juang women are heavily engaged in wood selling. They use part of the income derived from wood selling to buy clothes, cosmetics and cheap fineries for themselves, or to provide boys from other villages with small gifts (e.g. bidis, towels). The loss of their autonomy is felt by the young women that have married into Juang families in villages, which are in the interior of the region, where there is no easy access to the market. With the loss of income from wood sales they become fully dependent upon their husbands in order to be able to purchase goods at the market. They equally lose the opportunity to travel frequently with their friends to Keonjhar, to enjoy the market day in the town and to spend some money drinking *handia* on their way back.

However, the bulk of their income is spent on buying rice; a task which they consider to be their responsibility:

> "If we do not contribute to our family, how will this family manage? Boys would not give any money to the family, they will drink *mahuli*."
> Dheni and Nagami, two Juang sisters.

In strong contrast to the unmarried women, young unmarried Juang men are not expected to spend part of their income from wood selling on rice. They work for themselves; they spend the money on clothes, going to the cinema, drinks or buying small gifts for girls. It is a general statement by the Juang villagers, male as well as female, that boys will only take responsibility for the family after they have married. Thus, young unmarried men are much less involved in wood selling.

Married Juang women with small children do not usually sell wood; they are restricted in their movements in the forest and in the carrying wood to the market. They may be involved in irregular wood selling in nearby villages. During this period their husbands may resume or increase their wood selling activities, especially if there are no other female wood sellers in the household. Once the children are older and there are family members to take care of them (e.g. elder sisters, mother-in-law), married women are also busy in wood selling. Old women reduce or stop wood selling and resume other duties in the household, such as providing firewood for the household, taking care of small children, helping with farm work, preparing food or herding goats.

Married Juang men have the opportunity to adjust their own labour input according to the availability of female labour in their family. They decide how much, if any they will contribute to the household income by means of wood selling, over and above that which is absolutely necessary. As a socially accepted norm, a Juang husband, in the same way as his wife, should feel responsible for providing his family with their daily necessities. Many men do indeed contribute rice to the household, together with other items, such as salt, oil, spices, vegetables, soap etc. which are purchased on the market. Many husbands however, spend considerable sums of money on alcoholic drinks. Although some of the Juang women are used to drinking *handia* and in rare cases even *mahul*, they drink less frequently and in lower quantities and spend less of the income obtained from wood selling on alcoholic beverages. The consumption of alcohol among the Juang in general has increased considerably. Whereas in the past, the consumption of *handia* and *mahul* mainly took place during ceremonies and events such as marriages, deaths and various agricultural rituals; alcohol is now more readily available.

The general observations made by Elvin Verrier in the 1940s no longer holds true:

> "Liquor is another restorative that helps the people to face the very heavy work that often comes to them. But the Juang did not strike me as specially drunken. Like most aboriginals, they like to drink a lot at a celebration, at a festival, funeral or marriage, but they are not 'dram-drinkers' and they do not regularly drink anything but toddy juice" (Verrier 1948:44).

The changing pattern of alcohol consumption is probably connected to an increase in wood selling activities: an increase in cash income and contact to the market has led to the easier access to and more frequent consumption of alcohol; not only rice beer (*handia*), but also *mahul*. Drunken villagers, more often men than women, are to be met frequently, at any time of the day or week. Some Juang men occasionally produce *mahul* themselves and several Munda households produce and sell it regularly. Rice beer is produced and subsequently sold by several of the Munda and Santal women.

It is difficult for women to force reluctant or irresponsible husbands to fulfil their agricultural duties as has been already elaborated. Sometimes, male members of a household try to extort cash from the female wood sellers. In one particular case, the head of a household demanded money from his wife that she had made from the sale of wood; if she did not give this to him, he stated that he would not plough their fields. In another case it was the eldest unmarried son of a widow who continually asked his mother and sisters for cash, threatening that he would not plough the family fields.

The loss of a female wood seller in many cases puts a serious strain upon the household economy. The lack of a considerable contribution of rice to the family has then to be balanced by the remaining family members. This probably increases the burden upon the remaining female household members; in the case of our neighbours in Kodipasa, the marriage of the sister of the household head finally led to his divorce. For a period of time, his wife had tried to take over the task of wood selling. His mother, who was approximately 65, supported her by taking care of the four children who were too small to work. The household head himself did not make any effort to increase the family income, counting instead upon the remaining female family members to do this. However, his wife could not manage to combine wood selling with caring for her smallest child and she finally left and returned to her native village. There were conflicts already in this household, prior to the marriage of the household head's sister. The situation did not escalate however, so long as there was sufficient food, which was mainly provided by the sister of the household head. In another case, the marriage of a hard-working daughter resulted in an increase in responsibilities for her mother, whereas the unmarried younger brother, aged approximately eighteen, did not assist with the sale of wood. Shortly after the marriage of his sister, he resumed wage labour for a period of time, but did not contribute any money or rice to the household from his income.

Wood selling is of crucial importance to widows: together with wage labour it allows them to eke out their living, even if they are unable to cultivate land.

4.4 Ethnic groups and economy

In this section, the economic activities and strategies of the households are analysed by ethnic groups.

Table 47: Involvement of the households of the ethnic groups in different economic activities in 1998/99

	Number of households involved in agriculture only	Number of households involved in wage labour only	Number of households involved in wood selling only
Juang Kodipasa	1	2	0
Munda	0	1	0
Santal	0	0	0
Gouda	9	0	0
Total Kodipasa	10	3	0
Juang Upper Kansa	0	0	0
Both villages	**10 (7.4%)**	**3 (2.2%)**	**0 (0%)**

	Number of households involved in agriculture and wage labour	Number of households involved in agriculture and wood selling	Number of households involved in wage labour and wood selling	Number of households involved in agriculture, wage labour and wood selling	Other
Juang Kodipasa	2	10	7	43	1
Munda	5	0	0	22	0
Santal	4	0	1	1	0
Gouda	3	0	0	4	0
Total Kodipasa	14	10	8	70	1
Juang Upper Kansa	0	3	1	15	1
Both villages	**14 (10.3%)**	**13 (9.6%)**	**9 (6.6%)**	**85 (62.5%)**	**2 (1.5%)**

4.4.1 Agriculture

The agricultural involvement of the various groups in Kodipasa is indicated by the amount of land that they own and cultivate. It has already been shown that the amount of land on paper does not necessarily correspond to the actual area that is cultivated.

Taking into consideration the average area of nominal and cultivated land, belonging to the various groups in Kodipasa, in 1998/99 the following picture emerges:

Table 48: Nominal and cultivated land by ethnic groups

Group	Average nominal land in ha per household	Average nominal land in ha per consumer	Average cultivated land in ha per household	Average cultivated land in ha per consumer
Gouda	0.1869	0.0358	1.2995	0.2938
Munda	0.3707	0.1110	0.9449	0.2859
Santal	0.9892	0.2552	1.4333	0.2821
Juang Kodipasa	0.9318	0.2545	0.7660	0.1923
All Kodipasa	0.6966	0.1897	0.9173	0.2335

The average nominal land per household is highest among the Santal and Juang and much lower among the Munda and Gouda. The average nominal land per consumer parallels this pattern, i.e. it is highest among the Santal and the Juang, followed by the Munda and lastly by the Gouda.

However, the average cultivated land (estimated by the quantity of seed) per household is highest among the Santal, followed by the Gouda and Munda. The Juang cultivate the smallest area per household. The average cultivated land per consumer is highest among the Gouda, followed by the Munda and Santal, with the Juang again cultivating a much smaller area per consumer than all the other groups.

The deficit of cultivated land and therefore rice is highest among the Juang. It is considerably lower for the Santal, Munda and Gouda. This indicates that the Juang have a higher dependency upon income from wage labour and/or wood selling, due to less agricultural production.

Table 49: Rate of nominal land to cultivated land for the ethnic groups in Kodipasa

Group	Average rate of nominal to cultivated land
Gouda	1:6.9
Munda	1:2.5
Santal	1:1.45
Juang Kodipasa	1:0.82
All Kodipasa	**1:1.32**

Obviously the largest difference between nominal and cultivated land is among the Gouda, who cultivate almost seven times as much land as they own. The Munda follow with the cultivation of an area more than twice the size of their nominal land. Also, the Santal cultivate more land than they own; it is only the Juang who actually cultivate less than what they own. How is it possible that farmers cultivate more land than they own and why do the Juang cultivate less? It is reasonable to assume that the general area of cultivation has increased within the last twenty years, since the land settlement was finalised. Even at that time, some land which actually was cultivated under shifting cultivation, had been classified as government and not private agricultural land. Since then, other government land has been encroached and

converted into farmland. Another explanation for the discrepancy between nominal and cultivated land, are land transfers. In the following chapter it will be shown that predominantly the Juang are leasing, mortgaging and selling land to the other groups, and to a lesser degree, among themselves.

4.4.1.1 Land transfer

With regard to agricultural land, there are basically four strategies households can pursue: households without land can try to obtain it. If they are already in possession of land, they can either try to keep it, enlarge it or transfer it.[37] Such strategies are linked to other economic options (wage labour, wood selling, small business) as well as to the needs, possibilities, constraints and priorities of a household and its members.
Here I will focus on the following questions:

1) What options do the peasants have in order to transfer or obtain land? I will present the different types of contractual arrangements for land transactions and analyse their occurrence among the various groups.
2) Why do many Juang households transfer land [38] while households from the other groups try to acquire more land? I will discuss land transactions along with the different strategies used by the farmers which not only take account of economic considerations, but also aspects of social status, caste and gender.
3) Why are prices with regard to land transfer rather low in the research area, despite the local demand for land?

Leasing, mortgaging, selling or buying agricultural land are common practices in the villages. Leasing land to somebody means to transfer a piece of land for a period of time and amount of money, all of which are specified. In most cases all of the money for the land is paid at the outset and not as an annual rent. Mortgaging land means to hand over a specified piece of land to somebody in order to get a credit. The debtor gets back his land only after repayment of his financial debt. The number of years land is mortgaged thus depends on the ability to pay back the credit. Selling is the definitive transfer of land. But officially confirmed purchase and sale transactions of land are rather rare in comparison to more informal sales and purchases where there is no official acknowledgement. Due to the legal situation (elaborated in 4.4.1.6) the informal sale and purchase of land can result in the transaction being declared null and void.

The following data relates to the census conducted in 1998/99. The questions raised with regard to land transfers were the following: Does the household lease land to other households? Or does the household lease land from other households? Does the household mortgage land to others or does it hold land of others in pledge? Has the household ever sold land to other households? Or has the household ever bought land from other households?

[37] I do not consider in this chapter strategies for improving the quality of land.
[38] The problem of tribal land alienation is prominent in the discourse about tribes in India. Common explanations for the loss of tribal land are the poverty of tribal people, dishonesty of moneylenders, merchants and rich peasants, combined with the helplessness of illiterate peasants who are cheated. Tribal people are perceived as passive and reactive victims rather than as rational actors following strategies under given circumstances. There are few studies analysing tribal land issues and aspects of land transfers with a different perspective. However, there are good reasons to conceptualise tribal people that cultivate land as being small peasants. F.G. Bailey's study of a non-tribal village in highland Southern Orissa includes a chapter on land coming onto the market (1957:47): the behaviour of these non-tribal small peasants does not differ substantially from that of the Juang under study here, although specific conditions have to be taken into consideration as will be shown in this chapter.

Presented here is a snapshot of the situation in 1998/99 indicating shifting and irregular land use by various households. Dependent upon the conditions of the land transfers, households dispose of and acquire land for varying periods of time.

Table 50: Cases of households leasing land to other households

Lessors	To Juang HH	To Munda HH	To Gouda HH	To Santal HH	Total cases*
Juang HH	8	19	13	2	42 (31 HH)
Munda HH	0	2	0	0	2 (2 HH)
Gouda HH	0	0	0	0	0
Santal HH	0	0	0	0	0

* Cases refer to land transaction from one to another household. Because the same household may be involved in land transactions to several households, the number of households is smaller than the number of cases.

Table 51: Cases of households mortgaging land to other households

Mortgagors:	To Juang HH	To Munda HH	To Gouda HH	To Santal HH	Total cases
Juang HH	4	12	4	3	23 (16 HH)
Munda HH	0	0	0	0	0
Gouda HH	0	1	0	0	1
Santal HH	0	0	0	0	0

Table 52: Cases of households selling land to other households

Vendors:	To Juang HH	To Munda HH	To Gouda HH	To Santal HH	Total cases
Juang HH	3	16	6	5	30 (20 HH)
Munda HH	0	0	0	0	0
Gouda HH	0	0	0	0	0
Santal HH	0	0	0	0	0

It is obvious that all three methods of temporary or definitive land transfer are mostly from Juang households to the other three groups of villagers, while very few, if any transactions take place among or between the Munda, Gouda and Santal. The Juang do not obtain land from any of the other groups. The transfer of land among the Juang households is less frequent than land transfer to other groups, but it does occur.

Out of a total of 86 Juang households, only four of them were landless. During the period 1998/1999, out of a total of 82 Juang households that owned land, at least 48 (59%) of these were involved in some kind of land transfer. The leasing of land was the most common type (46.3% of all transfers), followed by sale (29.8% of all transfers) and finally mortgage (23.9% of all transfers). Seven of the Juang households were involved in more than one type of land transfer.

There was only one landless household among the 28 Munda households. Out of a total of 27 households with land only two (7%) were transferring land to others. All of the six Santal households retained the land that they owned. Twelve out of the sixteen Gouda households were landless on paper, which meant that they could not transfer land. Of the four remaining Gouda households, one had mortgaged some land to a Munda.

This data suggests that the Juang are more willing to dispose of their land, whereas the other groups generally aim to increase their agricultural production by leasing, holding in pledge and buying additional land from the Juang. This may also be interpreted as a greater willingness by the Juang population to earn their livelihood by means other than farming, whereas the other groups strive to gain additional land for farming, or at least try to keep the

little land that they already have. An important economic factor is of course the fact, that the Juang, as the original inhabitants of the area, do have land at their disposal, whereas the immigrant groups are in a less favourable position. An analysis of the distribution of private land (registered in the Revenue Inspector Office) of the various groups is as follows:

Table 53: Distribution of private land of the ethnic groups

All Juang	70.1385 ha	78.42%
Munda	10.3790 ha	11.60%
Gouda	2.9910 ha	3.34%
Santal	5.9350 ha	6.64%
Total private land for agriculture	**89.4435 ha**	**100.00%**

When considering land ownership among the various Juang clans, it is obvious that the households not belonging to the founder clan, *barcha bok*, have less land than families of the founder clan: the average land holding of households belonging to *barcha bok* is 1.22 ha, whereas the average amount of land belonging to families from other clans is only 0.53 ha. This however does not mean that there are no poor *barcha bok* families.

The fact that the Juang have more land at their disposal than the Gouda or Munda, does not yet explain why they transfer it to others. In order to understand local land transfers, one has to consider, not only the reasons why the Juang households choose to transfer land, but also the motivations and means of those households choosing the strategy of obtaining more land for cultivation. A high demand for land results from the growing population of landless Gouda families, as well as from some of the Munda households who are striving to improve their economic situation by agricultural means. Part of the Santal households also highly value agricultural production and try to enlarge their farm land, although they own as much land per consumer as the Juang.

There is a tendency among poor households to transfer land to better-off households, as these households are in a position to offer the money required, at short notice, which helps in times of emergency. They are also interested in cultivating more land and are capable of paying additional labour in case the cultivation of additional land requires labour above the household's own capacity. It is mainly some Gouda families, that have the financial means with which to buy, lease or hold in pledge land from the Juang, in cases where these require larger sums of money in cash or kind (e.g. rice and goats for ceremonies). Several Munda and Santal households also try to obtain more land from the Juang. However, the rental, mortgaging and sale of land also takes place among Juang households, although to a lesser extent.

4.4.1.2 Reasons for transferring land

Table 54: Reasons for the transference of land by the Juang households

Reason	Cases
Death	14
Sickness	12
Food scarcity	5
Marriage	5
Alcohol	6
Debts / to pay back loan	5
Material needs	5

The reasons for the land transactions that took place could not be determined in all cases. In some cases, interviewees did not know the reasons why either their fathers or late husbands,

transferred their land; or they did not wish to discuss it. In some cases I only gained information from the individuals that were in receipt of the land. However, from the information given, it was possible to ascertain that the Juang households lease out, mortgage or sell land for the following reasons:

1) Sickness and death are a serious burden upon the families. They spend money on medical care and at the same time they lose valuable family labour. In the case of the death of a family member, they have to perform the death ritual (*sudho*) linked with immediate expenditure in kind, especially rice and meat for the relatives, friends and neighbours. Among the Juang households, the costs incurred at the time of death rituals, during the period of field research varied between 500 to 3000 Rs. If there is not an ample stock of paddy available, then rice has to be purchased, and also possibly a goat.
2) The most vulnerable groups that may be forced to transfer their land are: widows with small children, widows who do not have a son that is old enough to plough the land and older widows that live alone. For religious reasons women in India are not allowed to touch a plough. From the thirteen non-cultivating households, eight of them were Juang, where the household head in each case was a widow. All of these have either, sold, leased or mortgaged their land after the death of their husband, be it for performing the death ritual and/or due to a shortage of labour within their household.
3) Food scarcity due to bad harvest or misfortune in the family such as sickness and death may force Juang households to transfer land in order to buy food.
4) Marriages are a rather expensive affair for a Juang household. They involve large amounts of paddy (400 to 500 kg), partially as a gift to the family of the bride, partially to feed the guests. Furthermore, up to four goats, rice beer and *mahul*, money to buy clothes for the bride and her kin (*dhotis* and *saris*) and other expenditures for preparing food for the guests are required. In the case of the marriage, in 2002, of Maheswar Juang (son of a widow, with one brother and one sister) to a woman from Rodhuan, the expenditure included the following items:
   – 7 pieces of cloth (approx. 650 Rs)
   – 10 bottles of *mahul* (100 Rs.)
   – 3 goats and 1 cock (approx. 1500 Rs.)
   – 1 pig (500 Rs.)
   – 2 *khandi* paddy (280 Rs.)
   – 300 kg rice (3000 Rs.)
   – 2 pots of *handia* (150 Rs.)

   The total cost, in cash and kind, amounted to more than 6000 Rs.

   Although kin and neighbours cooperate and give some support to a marriage, the main burden in cash and kind is carried by the family of the bridegroom. Support received by close relatives in the form of cash or kind (rice, goats, pigs) is limited and based on rather strict and balanced reciprocity. The bridegroom's paternal and maternal uncles and aunts, together with his own married brothers and sisters, are expected to contribute towards the cost of the marriage. However, their contributions may be very small, and more of a symbolic nature rather than of substantial material value. Thus, in the above case, the main contribution was 3 *khandi* rice (value of approx. 520 Rs.), which was given by the maternal uncle of the bridegroom. This contribution would have to be repaid, in the event of a marriage in his maternal uncle's family.
5) In at least six cases, land has been mortgaged, leased out or sold by male members, in order for them to buy alcohol. There were probably other instances of this happening, although the families concerned did not explicitly mention them. Excessive consumption of alcohol is a problem, mostly concerning the Juang, and to a lesser extent the Munda, al-

though not the Gouda. The higher-ranking Gouda do not drink alcohol at all, whereas the Gouda herders do it in a more controlled way.

6) Two final reasons why the Juang families may transfer land to others are the necessity to either repay debts or to satisfy material needs (e.g. new roof, plough, bullock, bicycle).

These are all reasons why Juang households lease, mortgage or sell their land. However, most of these circumstances, do to some extent also apply to households of the Munda, Gouda and Santal. They all are faced with sickness, death, marriage, crop failure and any number of other risks and insecurities. They all have material needs and are all in need of cash at some time or other. The costs incurred for a marriage for example are the same or even higher among these groups. Thus in the case of Munda household 95, the total cost of the marriage of a son would be in the region of 8000 Rs.:

– 200 kg rice for the feast (2000 Rs.)
– 120 kg rice for *handia* (1200 Rs.)
– 2 bullocks for 800-900 Rs. each (1600-1800 Rs.) as bride-price
– 2000 Rs. for clothes
– 1 goat, 1 cock, 15 *pai* paddy for the bride's family (1000 Rs.)

In the case of the richest Gouda household, the cost of a son's marriage would be in the region of 10,000 to 20,000 Rs. In the case of a daughter this could be as high as 30,000 Rs. Of course such expenditures do to some extent correlate with the general economic situation of a household and a family.

The hypothesis that the Juang are more vulnerable to crisis than other groups in the research area, and are therefore under greater pressure to transfer their land, cannot be confirmed. These situations are typical for all small peasant households. The reasons mentioned above cannot sufficiently explain why the Juang are ready to transfer land in such situations, while households of other groups do this very rarely. But they evoke other questions: what strategies and options do other households have for coping with these situations and are these options also available to the Juang? Why do other households not transfer land to the same extent as the Juang families? And why do non-Juang households with little or no land opt for trying to acquire some or more land, thereby giving the Juang the option, of transferring their land?

One possible hypothesis could be that social networks linked with support in cash or kind from outside the household which is facing economic pressure or an emergency, would relieve the pressure leading otherwise to the household in question having to forfeit its land. Thus, households with more adequate social networks and a higher degree of solidarity, including economic support from outside the household, would be less vulnerable to the temporary or permanent loss of their land. Maybe such networks and forms of solidarity are weaker among the Juang than among the other groups?

Most households do have some kinship relations with other households in the village, and this applies to all of the ethnic groups. However, there are no substantial indications that kinship rights and duties, or forms of solidarity, in cases of emergency, vary in any significant way, for any of the ethnic groups. On the contrary, in all of the ethnic groups, households as the main economic units are very much self-reliant and they depend to a large degree on their own family members, resources and capabilities. Little or no support is received, even from close kin, in the case of an emergency. If a household receives support at all, even from close kin, this is strictly based on reciprocity or on payment; e.g. labour for labour or labour for cash. However, the Gouda appear to have an advantage over the Juang and the Munda with regard to credit: they may get financial or material support from relatives, although they have to pay this back with interest. There appears to be sufficient trust among the Gouda relatives

that credits will be repaid. This does not appear to be the case for the other groups. Individuals say that it is difficult to obtain credit, as the creditors are unsure that the loans will be repaid even among relatives. The possibility of obtaining credit without land being offered as a security, helps to stabilise the economic situation of a household in cases of emergency, or enables a household to invest and improve its general situation Financially, they will be able to pay for land and the necessary labour with which to cultivate it.

In all of the ethnic groups, free support from kin is not expected. It is considered the norm for a family to be responsible for its own household and to cope with any difficult situations that may arise within it. When asking people, whose families were facing serious problems, whether they received any support from their kin, they often reacted with a counter-question: "Why should I get help? They have their own families, they have to take care of themselves."

Thus, any problem is immediately reflected in the household situation and requires reactions based on the resources and capacities of its family members. One might interpret this lack of support to be caused by the lack of means – poor people do not have the means with which to support other poor people. However, also among the wealthier households there is little cooperation and support on such occasions.

Given the fact that in all of the groups, households basically have to face their economic problems and constraints themselves, their strategies result from their economic options and preferences, which differ among the various ethnic groups, as will be demonstrated in the following sections. Selling wood and/or being employed as wage labour are the two main options in the research area, apart from agriculture. They are theoretically open to all groups. However, social and cultural barriers and preferences result in different patterns of strategies among the households of the various groups.

To cultivate land and sell milk are considered to be appropriate ways of earning an income by the higher-ranking Gouda. They try to increase their farm land and have the financial means to do so. They do not consider wood selling an appropriate activity for their caste, even under serious economic circumstances. When asked, why they do not sell wood, they state that they have no knowledge of this kind of work, and do not wish to acquire it, as this would mean that they would have to work alongside the Juang in the forest and they do not wish to mix with the Juang. The idea that their women could sell wood is almost unthinkable. In these households, the men provide the fuel wood for household use, which they collect from time to time in large quantities. In all other groups, it is predominantly the women that perform this task. Off-farm wage labour is performed reluctantly, only if absolutely necessary, and only by the men. In 2003, several of the Gouda informed me about a serious drought, which had occurred about twelve years previously. Even at the time of the drought the Gouda did not sell wood and the women were not employed as wage labourers. Only men worked in road construction or were digging ponds as wage labourers. Wage labour for girls and women, even farm-wage labour, is considered degrading. The exception to this is farm-wage labour for other Gouda, preferably for kin. High social status among these Gouda is also linked to the fact that they can employ wage labour for farm work, thereby allowing the women of the household to stay at home. Thus, it is a combination of caste, social status and ideals about appropriate economic activities for Gouda women and men, which results in them striving to keep or increase the amount of land that they have available for cultivation. Out of a total of sixteen Gouda households, twelve are landless on paper, but all of them cultivate land in Kodipasa.

The majority of the Gouda families (the men only) sell milk outside the village, on a regular daily basis and from this they manage to earn a regular income. Combined with the income they earn, from their agricultural activities, this makes them less vulnerable to unforeseen events. It allows them to save some cash for emergencies and for costly events such as

marriages or the acquisition of additional land to cultivate. However, selling milk requires the purchase of a specific breed of Jersey cow. They produce more milk than the local breeds, but also require different treatment. Jersey cows are expensive. Prices vary between 6000 Rs to 12.000 Rs. and their acquisition requires investment and/or long term saving capacities: Thus in the case of household 63, one son had worked for two years in a hotel in Keonjhar. His salary was 800 Rs. per month and he contributed all of this money to his family. With this money, plus a loan from some relatives they bought three Jersey cows for totally 25,000 Rs. They are able to sell about 10 litres of milk per day, yielding a profit of 55 Rs. per day (100 Rs. minus approximately 45 Rs. for extra fodder). They cultivate some encroached land, as well as land from the Juang. The daughters sometimes work as farm-wage labourers, but only for their relatives. Most of the Gouda families use wage labour, indicating a scarcity of family labour in the context of their diversified economic activities. The input of labour required to keep milk cows and sell milk products diminishes the amount of male labour available for cultivation.

Some of the Gouda households earn additional income from small-scale business activities. One such family runs the paddy mill in the village of Kodipasa. From this mill, they earn an income in kind of between 30 to 40 kg rice per month. Another Gouda family runs a small shop in the village; its monthly profit is between 400 to 500 Rs., equivalent to 15 Rs. per day. Both these families combine their business activities with milk selling and farming. Thus they have a regular income in cash as well as in kind.

The lower-ranking Gouda herders do not keep cows in order to sell milk, but they earn a sufficient income in paddy, by grazing the cows of the villagers. Nevertheless, they are engaged in cultivating land, which is partly encroached government land, partly land leased and mortgaged from the Juang, to improve their economic situation and to make use of free family labour. In contrast to the status-conscious families, who strive for high-ranking caste membership, Gouda wood sellers are from these lower-ranking families and they have, to a certain extent, assimilated with the Juang. They are socially closer to them, they drink alcohol with them and they herd cattle for them. Some men from this group also work as wage labourers in order to get cash. There is less restriction for women to be employed as wage labour and some of them even sell wood to obtain a cash income. There is social mobility among the Gouda; men who have previously worked as cattle herders for the Juang, have ceased to do so and now earn their livelihood from farming, as cattle owners and also as small-scale business men.

To earn an income from being milkmen, like the Gouda, is not an option for the Juang. This would mean purchasing rather expensive Jersey cows[39]. The fact that the Juang do not become milkmen like the Gouda is also linked to the caste system. The Juang are considered unclean by the Gouda and it may well be that clients of the Gouda milkmen, in other villages and in the town, would not buy milk and milk products from the Juang or any other tribal people. There are no milkmen among the Munda or Santal.

There are no social barriers that prevent the Juang from being involved in small scale business activities. However, running a business requires an initial capital investment acquired either from savings or from surplus production. The long-term planning and strategies required to run a business however, are not a dominant feature or a favoured option for the Juang; although the wealthiest of the Juang households runs a tiny shop in the village.

However, the Juang do have the option of transferring land to other households and they are able to compensate for their loss of land by wood selling and wage labour. Selling wood is

[39] The Juang do not consume milk and they do not milk their cows which anyhow do not give much milk.

a viable economic option for the Juang, who are more inclined to do this work than the Gouda, Munda and Santal. The Juang men have in fact sold wood for a long time. Over the past twenty to thirty years the Juang women have also been involved in wood selling and today they do more of this than the men. It is interesting to note that female involvement in the business of wood selling has increased with the development of some kind of land market. On average, there is more labour involved in wood selling than in paddy cultivation on permanent fields, as has already been shown (in chapter 3.5). It appears that it is to a large extent, the Juang women that compensate for the loss of land by increasing their input of labour, not only for wood selling, but also additional farm-wage labour as will be shown below. There are no gender specific restrictions over Juang women selling wood and being wage labourers as there are among the higher- ranking Gouda. Given such restrictions, the Juang men would possibly be more reticent to forfeit their land and instead adopt other options and strategies.

A further explanation as to why the Juang are prepared to transfer their land, may be that the rather loose kinship ties among the Juang do not impede land alienation; there is no pronounced concept that ancestral land must be kept within a kinship group (lineage, clan) and there are no social and cultural barriers for checking land transfers to any other household, be it related or not to the owner of the land. This is not tantamount to claiming that the Juang do not identify themselves with their Juang homeland, village territory and landscape. An example of this is that Juang rituals are important for the well being of all of the villagers, not just the Juang. Any such rituals have to be performed by the Juang priests. For an outsider to obtain land in Kodipasa, they have to become a member of the village community. Juang brothers, however, will not interfere in each other's land matters, once the land has been divided between them.

The link between land ownership and socio-political status in the Juang community is also not very strong; married men have access to the main political institution of the *majang* (men's meeting house), even if they have no land. Being rich in land may result in being considered important in village affairs (as is the case with the richest Juang), however, there is other criteria linked to social status and prestige.

The Munda favour agriculture and like the Gouda they strive to keep their land or to increase it by obtaining more from the Juang, if they can afford it. Keeping cows, for the purpose of selling milk, like the Gouda, is not an option for them. However, some of the Munda households produce and sell alcohol (*handia* as well as *mahul*); mainly to the Juang and other Munda. This gives them some cash income.

With the Munda, there are no restrictions over the selling wood linked to social status or gender, as with the higher- ranking Gouda. But the Munda in Kodipasa do not have the same long-established tradition of selling wood like the Juang. They prefer wage labour. They sell wood only if there is a shortage of land, or any other opportunities for earning an income. Selling wood, moreover, is done more by men than women among the Munda and wage labour is more gender-balanced than among the Juang.

The Santal are first of all farmers. However, they do not object to combining agriculture with wage labour and small business and they do not restrict the wage labour of their women on the grounds of social status like the Gouda. Santal men rarely sell wood and consider it the last possible option for obtaining an income. The women do not sell wood at all, but they do produce *handia* for sale.

Thus the combination of the following factors results in land transfers from the Juang to the other groups: the preference for agricultural production of the immigrant population, the fact, that the Juang do have more land to give away and the possibility for Juang men to shift the costs for neglecting their own agricultural production to the Juang women. The various types of land transfers are analysed further in the following sections.

4.4.1.3 Leasing

Leasing land to somebody means to offer that person a specific piece of land for a specified period of time for a specified amount of money. In most cases the total amount of money changes hands at the start of the lease period and is not paid as an annual rent.

On one hand, to lease out land to somebody is more advantageous for the owner of the land than to mortgage or sell land, as both the term of lease and the rent are fixed in advance, no money has to be returned and at the end of the lease period the landowner regains the land. Any agricultural risks during the period of lease are taken by the tenant.

On the other hand, the cost of leasing land from a landowner is surprisingly low, taking into account both the scarcity of land in the study area and the value of the paddy cultivated and harvested by the tenant / leaseholder. Juang households predominantly lease out their land in times of urgent financial needs. There are few rich households that have a surplus of ready cash available and the Juang do not have much bargaining power in times of need. An example of this is given by Sanatan Munda, who tries to increase his land by acquiring land through leasing, mortgage and through buying land from others. He explained that if one of the Juang, who was in need of cash, was to approach him and offer him land for lease at a particular price, and over a specific period of time, he would state that he did not have the money to do this over the time period suggested. He would then propose to rent the land but only if the leasing cost and the period of the lease were to be reduced. If they cannot find anyone else to rent their land, under their original terms, Santal would get it at the reduced rate and would then negotiate a longer period of lease, as the landowner would be desperate for the money. To get some idea of the low cost of land lease in the study area, we can consider some cases where there is available information on the amount of seed used on a rented field (converted in size in ha), the number of years it has been leased and the money value involved (calculated in Rs. per ha per year):

Table 55: Prices for leasing land in 1998/99

HH number	Total price in Rs.	Years	Price per year in Rs.	Size in ha	Annual rent per ha in Rs.
9	600	6	100	0.2	500
10	1000	8	125	0.2	625
11	500	5	100	0.25	400
13	300 Rs. + 1 goat	10	50-60	0.22	230-270
16	500	4	125	0.2	625
	1000	10	100	0.2	500
	650	6	108	0.1	1080
17	500	5	100	0.2	500
18	900	4	225	0.25	900
	440	4	110	0.25	440
39	320	4	80	0.3	267
42	1000	5	200	0.2	1000
46	600	6	100	0.6	167
52	800	10	80	0.3	267
68	200	2	100	0.11	909
121	900	5	180	0.4	450
129	1000	10	100	0.3	333

Prices vary according to the size, quality and position of the plots as well as the bargaining power of the individuals involved in the transaction. Thus, household number 18 once leased out two plots (0.25 ha) for a total of 900 Rs. for a period of 4 years to another household.

Several years later, after the lease period of these two paddy fields had finished, the household needed to lease out that land again, as they required cash urgently, due to sickness in the family. On this occasion, as before, the lease period was four years, but now they only received 440 Rs. in rent.

In comparison to the average income generated from cultivation, the rental cost of land is very low. The highest annual rent of 1080 Rs. per ha corresponds to 108 kg rice bought in the market in 1999. Assuming a low yield of 490 kg rice per ha, corresponding to 4900 Rs., annual rent is 22%, assuming a better yield of 560 kg rice, annual rent is 19% and assuming a good yield of 595 kg rice, annual rent is 18%. If *bila* land is cultivated with HYV and fertilizer, yields may be up to 1050 kg per ha and the annual rent would be only 10%.

HH 9: This Juang household head leased out one plot of *bila* land to a Munda, for a total of 600 Rs. for 6 years. The yield from 1 *khandi* paddy seed to cultivate this plot of approx. 0.2 ha, is between 8 to 10 *khandi* paddy in a good year, i.e. 160 to 200 kg paddy or 112 to 140 kg cleaned rice, the value of which is between 1120 to 1400 Rs. per year. The annual rent (100R.s) is equal to approximately 7% to 9% of the yield. Of course, the cost of labour involved in farming a piece of *bila* land of approximately 0.2 ha in size has to be deducted. Labour input is approximately 27 man-days, with an output of approximately 4 to 5 kg per day. To purchase the same amount of rice from the sale of wood, would require at best 37 man-days of labour (assuming a good daily wage of 30 Rs.), or at worst 56 man-days of labour (assuming a lower wage of 20 Rs. per day).

HH 10: This Juang household head leased out a plot of land to another Juang for a total of 1000 Rs. for 8 years. The yield from 1 *khandi* seed to to cultivate this plot of approx. 0.2 ha, in a good year is between 8 to 10 *khandi* paddy, i.e. 160 to 200 kg paddy, 112 to 140 kg cleaned rice, the value of which is between 1120 to 1400 Rs. per year. The annual rent (125 Rs.), is equal to approximately 9% to 11% of the yield. Labour input is approximately 27 man-days, with an output of approximately 4 to 5 kg per day. To purchase the same amount of rice from the sale of wood, would require at best 37 man-days of labour (assuming a good daily wage of 30 Rs.), or at worst 56 man-days of labour (assuming a lower wage of 20 Rs. per day).

HH 16: This Juang household head leased out a plot of land to a Gouda for a total of 500 Rs. for 4 years. The yield from *1 khandi* seed to cultivate this plot of approx. 0.2 ha, in a good year is between 8 to 10 *khandi* paddy, i.e. 160 to 200 kg paddy, 112 to 140 kg rice, the value of which is 1120 to 1400 Rs. per year. The annual rental (125 Rs.), is equal to approximately 9% to 11% of the yield. Labour input is approximately 27 man-days of labour, with an output of approximately 4 to 5 kg per day. To purchase the same amount of rice from the sale of wood would require at best 37 man-days of labour (assuming a good daily wage of 30 Rs.), or at worst 56 man-days of labour (assuming a lower wage of 20 Rs. per day).

HH 39: This Juang household head rented a plot of *bila* land (0.3ha) to a Munda, for a total of 320 Rs. for 4 years. The yield from 1.5 *khandi* (30kg) seed to cultivate this plot is approximately between 240 to 300 kg paddy or 168 to 210 kg rice per year the value of which is between 1680 to 2100 Rs. Annual rent is 80 Rs., i.e. 5% to 4% of the yield. Labour input for paddy cultivation is approx. 40.5 man-days. To purchase the same amount of rice from the sale of wood would require 56 to 84 man-days of labour with an income of between 20 to 30 Rs. per day.

HH 52: In 1993, Munda HH 95 rented land from Juang HH 52 for a period of 10 years for a total of 800 Rs. The yield in a good year from 1.5 *khandi* (30 kg) seed to cultivate this plot is between 240 to 300 kg paddy, i.e. 168 to 210 kg rice, the value of which is between 1680 to 2100 Rs. The annual rent for this plot is 80 Rs., i.e. 4% to 5% of the yield. Labour input is approximately 40.5 man-days. In order to buy the same amount of rice from the sale of wood

would require between 56 to 84 man-days of labour. After the harvest in 2003, the leasing period would be over and the Munda intended to buy this plot for 2500 Rs. At the time of the study, the family of HH 52 was composed of a widow with two sons and two daughters. At the time of the death of her husband, all of her children were still too small to help her cultivate her land.

4.4.1.4 Mortgaging

Mortgaging land to somebody means to give a specified piece of land to a creditor as pledge for a specified amount of money or material goods. Usually the period of time the creditor may cultivate this land is unspecified. He is obliged to give back the land only after the landowner has repaid his debts. In many cases land is mortgaged for several years; sometimes for a period of ten years or more.

In many cases significantly larger sums of money are involved in mortgaging as opposed to leasing land. The villagers mention debts of between 1200 and 8000 Rs. Considering the precarious financial situation of many Juang households and the fact that they live from hand to mouth, it is difficult for them to scrape together such amounts, in order repay the debt. In several cases sons, whose fathers had mortgaged their land would like to pay off their debt and reclaim their land, but they face problems in repaying such a large amount of money. I know of only one case, where the son of a deceased Juang planned to work as a waged labourer for at least one year, in order to earn the money to repay the debts and to reclaim the land mortaged to a Santal family. The Juang family had mortgaged approximately 0.4 ha *bila* land for 8000 Rs. They had been in need of 3000 Rs. for the death ceremony of the deceased household head and of another 5000 Rs. in order to purchase two bullocks.

Creditors prefer to hold land in pledge than to lease land from somebody. To hold land in pledge is no loss; the mortgagee (creditor) will get back his money and in most cases make a profit after having cultivated the land for several years. Most informants compared the practice of mortgaging land with a monetary credit which has to be paid back with interest: the right to cultivate the land and the gain from it is seen as the interest for the money credit, but also as a security. The longer the money is not paid back, the higher the "interest" gained by the creditor. To lend somebody a considerable sum to get a paddy field as pledge may thus be an advantageous strategy for the creditor. In some cases the mortgagor (debtor) asks for another credit after some years from the same creditor. Because of the landowner's incapability to repay his debts, he may get it; the higher the credit, the better the chance for the creditor to be able to cultivate the land for many more years

Household 13: The household head (a Juang) mortgaged one plot of *bila* land (0.2 ha) 3 years ago for 1200 Rs. to a Munda. The field can be sown with 20 kg (1 *khandi*) paddy seeds and in a good years yields approx. 10 to 12 *khandi* paddy, i.e. 200 to 240 kg paddy, i.e. 140 to 168 kg cleaned rice, in money value 1400 to 1600 Rs. per year.

Household 121: The household head (a Juang) has mortgaged a small piece of land for 250 Rs. to a Gouda. The field yields 5 to 6 *khandi* paddy in a good year, i.e. 100 to 120 kg paddy, 70 to 84 kg rice, in money value 700 to 840 Rs. per year.

Household 15: The household head (a Juang) mortgaged land (0.25 ha) 3 years ago for 3000 Rs. to a Munda. The seeds are 1.5 *khandi* paddy, yield in a good year approx. 15 *khandi*, i.e. 300 kg paddy, i.e. 210 kg cleaned rice with a value of 2100 Rs. per year.

Household 16: The household has mortgaged 0.5 ha land (50 kg seeds) for 1500 Rs. for more than 4 years to a Gouda.

Not included in these calculations however is the considerable risk of bad harvests due to unfavourable climatic conditions. Thus the above numbers are rough estimations and to get a

detailed picture of gains and losses due to leasing and mortagaging detailed case studies over longer periods would be necessary.

Strikingly, land is sometimes mortgaged for many years even when relatively small debts are involved, sums which could be procured with reasonable effort by the landowner, e.g. by wood selling. It seems that at least part of the Juang are not particularly interested in getting their land back and they leave it to others to cultivate for a small sum. Household No. 7 e.g. has mortgaged a piece of land for the sum of 500 Rs. since more than 4 years. Household No. 21 has mortgaged a plot for 200 Rs. for more than 4 years. Household No. 129 has mortgaged a plot for 100 Rs. for more than 2 years. If land has been mortgaged in order to use the credit for alcohol, there is a low probability that the land owner will try to repay his debts. He will rather spend his money on drinking. In other cases the land may be of lower quality and it is of low value to the owner. A further reason may be that a household does not have enough labour to work due to sickness or death in the family and the land would not be cultivated by them anyway.

4.4.1.5 Selling

If at all possible, the Juang will not sell their land, preferring instead to lease it out to someone, or to mortgage it. They wish to retain their land so that they can pass it on to the future generation. Young men need land in order to marry and start their own family and household (whereas young women will move to their husband's village). Land ownership is also appreciated among the immigrants who have settled in the Juang area due to the scarcity of land in the area that they originate from. To buy land is seen as the best option for households who try to cultivate more land. Ownership gives the landowner increased security and also means that he is far more able to predict and plan farming and other economic activities. However, due to the official legal requirements for the transfer of land by tribals, the informal purchase of Juang land carries a degree of risk (see 4.4.1.6). For a household to cultivate leased and pledged land from various other farmers – under various conditions, for various periods – involves risks and insecurities. To cultivate the land of others also restrains a household from investing in improving soil conditions and making provisions for better irrigation.

Larger amounts of money are involved in the purchase of land as opposed to the rental of it. Compared to the sums involved in the mortage of land however, the sums paid for buying land are comparable. This leads us to question of why farmers should sell their land instead of mortgaging it when they are in immediate need of money. My presumption is that the owners sell their land due to limited bargaining power; when they have little alternative of transferring it for better conditions in an emergency situation. Other farmers are interested in buying land in order to avoid risks and to gain security. To cultivate land mortgaged from somebody is less advantageous than to cultivate one's own land.

Table 56: Cost of purchasing land (examples of 5 households buying land)

HH number (buyers)	Cost in Rs. per plot	Size of plot in ha	Cost per ha in Rs
30	1300	0.3	4300
48	3500	1.0	3500
	800	0.15	5300
	800	0.1	8000
52	2500	0.3	8300
93	2000	0.2	10000
	2000	0.2	10000
	1700	0.1	17000
95	3000	0.2	15000

This means that the context of negotiation is important: the short and long term considerations of both parties, together with any possible alternatives to farming, such as wage labour and / or wood selling have to be taken into account during any negotiations.

Surprisingly some cultivable paddy fields in Kodipasa lie fallow despite the scarcity of land in the village. Two reasons have generally been given by the villagers for this: some people, who for various reasons do not cultivate land themselves, refuse to rent or mortgage it to other households, as they are afraid of losing their land. They want to keep their land for the future, for their children for example. Another reason for uncultivated paddy land is the fact, that land, which has not been cultivated for several years, requires an additional initial input of labour for the first few years. During this initial period, there will not be a good yield, as the soil has to soften. For a tenant it is only worthwhile renting such land if it can be cultivated over a long period.

Considering these various contractual arrangements of land transaction in the area under study, it may be said that there is a certain kind of a local land market. It operates in the context of the local scarcity of land, the limited purchasing power of poor households, and the limited bargaining power of households which are in immediate need of cash. This results in very low prices for land transfers of the various types.[40]

Under conditions of land scarcity the very low prices for which land is given away, are surprising. Many households would like to own more land, but poor households in particular lack the ready cash with which to pay for land from other households. There is therefore a limited demand for land. In times of need poor households have less bargaining power than the wealthier households, who have the means for obtaining additional low-cost land.

However, there are additional factors which may explain why the Juang transfer their land; one is the fact that they are more willing to sell wood than other groups. This is also linked to a gender division of labour, which allows the men to shift the burden of any additional labour that may be required to compensate loss of land, to the Juang women. Another factor is the rather loose kinship ties among the Juang, with regard to land. The fact that land is not an indispensable source of social status and prestige among the Juang further reduces their incentive to keep it.

4.4.1.6 Alienation of tribal land

Efforts to protect the Juang and Bhuiya from land alienation were made just before the merger of the princely state with the State of Orissa. In 1947 the then ruler Balababhadra Narayan Bhanja issued an act called the "Bhuyan and Juangapirh Immigration Act, 1947", declaring that:

> "Immigration of or attempt to immigrate into Bhuyan and Juangapirhs by any people other than a Bhuyan or Juanga shall henceforth be unlawful. (...) Immigration shall not be lawful except with the permission of the Ruler."

If the immigration is "in the interests of the Bhuyan and Juang community with regard to improvement of agriculture, medical aid, cottage industry, social development and benevolent act for the uplift of the Bhuyans and Juang or such other matter which will raise the standard of living of the Bhuyans and Juangs" (ibid.), the ruler may allow immigration of outsiders to

[40] Sarap (1998) contributes an interesting analysis of the "operation of land market in backward agriculture" on the basis of the study of a village in Sambalpur, Orissa. Although the land market in this village has some similarities to the situation described here for Kodipasa, it also differs in various aspects due to local conditions, which are different from the situation in Kodipasa.

the area. Non-Bhuiya or Non-Juang people that have resided in the Bhuyan and Juang Pirhs, for at least seven years prior to the implementation of the Act, were exempt.

This Act is no longer in force. Access to land in tribal areas for non-tribals is now regulated by the "Orissa Scheduled Areas Transfer of Immovable Property Regulation" of 1956 and by the Orissa Land Reform Act of 1960.

> "Notwithstanding anything contained in any law for the time being in force any transfer of immovable property situated within a Scheduled Area by a member of a Scheduled Tribe shall be absolutely null and void and of no force or effect whatsoever unless made in favour of another member of a Scheduled Tribe or with the previous consent in writing of the competent authority." (Orissa Scheduled Areas Transfer of Immovable Property Regulation 1956, pg. D-2)

"Transfer of immovable property" includes mortgage, lease, sale, gift, exchange or any other dealings with such property.

Therefore, to buy, mortgage or lease land from a tribal by a non-tribal is considered illegal under these laws and regulations if such transactions are not officially sanctioned. All informal land transactions are null and void and may be invalidated in favour of the tribal landowners, if there is any conflict and official proceeding:

> "(...) Where a person is found to be in unauthorised occupation of any immovable property of a member of a the Scheduled Tribes by way of trespass or otherwise the competent Authority may, either on application by the owner or any person interested therein, or on his own motion, and after giving the parties concerned an opportunity of being heard, order ejectment of the person so found to be in unauthorised occupation and shall cause restauration of possession of such property to the said member of the Scheduled Tribes or to his heirs" (ibid. D-6).

The 'competent authority' refers to the Collector and includes any other officer or officers appointed by the State Government to perform all or any of the function of the Collector under the regulations of this Act.

To legally obtain land, non-tribals (as well as tribals) may encroach wasteland and try to get it legalized officially. However, the total amount of encroached land that the State is prepared to legalise is restricted to one "standard acre" (see chapter 3.2.3). In Kodipasa it is mainly the Munda, Santal and Gouda that have encroached cultivable wasteland.

In the villages under study, most of the land transactions that take place are informal, unofficial and illegal in the strict sense of the term. Agreements are either made orally or sometimes in writing between the parties involved. As long as there is no new land settlement, such informal dealings have no legal consequences. However, among several of the Gouda families, the various types of land transfers from the Juang to the Gouda as non-tribals are known to be sensitive issues and there is some fear that the illegal cultivation of tribal land may be stopped by the government.

The fact that the informal purchase of land by the Gouda, from the Juang, is illegal and risky may be a further reason for low land prices.

4.4.2 Wage labour

4.4.2.1 Farm wage labour

Farm wage labour carried out by the adults from the various social groups of the population under study is as follows:

Table 57: Involvement of ethnic groups in farm wage labour

Ethnic group	% of all adults per group	% of male adult population per group	% of female adult population per group	% male farm wl of all farm wl per group	% female farm wl of all farm wl per group
All Juang	35.3% (96 of 272)	16.1% (20 of 124)	51.4% (76 of 148)	20.8% (20 of 96)	79.2% (76 of 96)
Munda	66.3% (57 of 86)	66.7% (26 of 39)	66.0% (31 of 47)	45.6% (26 of 57)	54.4% (31 of 57)
Santal	22.7% (5 of 22)	18.2% (2 of 11)	27.3% (3 of 11)	40.0% (2 of 5)	60.0% (3 of 5)
Gouda	25.5% (13 of 51)	24.0% (6 of 25)	26.9% (7 of 26)	46.2% (6 of 13)	53.8% (7 of 13)

In all of the four groups, a greater number of women than men are involved in farm wage labour. However, the largest difference between the number of men and women involved in farm wage labour is to be found among the Juang, where almost 80% of all farm wage labour is done by women. Gender balance is higher among the other groups. However, there are also other differences between the various groups: The Munda are more involved in farm wage labour than any other group, with both the men and women involved to a considerable extent. The Juang are not as involved in wage labour as the Munda, but are more so than the Gouda and Santal. The Gouda male and female farm wage labourers are mainly employed as cattle herders for the villagers.

Considering the fact, that farm wage labour is available for all of the four groups with the same problem of seasonal and irregular availability, the differences between the various groups including gender specific differences, have to be explained by the preferences of the various groups resulting in diverse economic strategies.

It is common for both the men and women of all of the four groups to carry out farming activities for their own households. To be employed as farm wage labourers on other people's farms, is connected with a lower social status, for the higher-ranking and status conscious Gouda families. Gouda women that belong to the wealthier families in particular, are primarily considered to be workers within their own families and households. These Gouda households try to avoid farm wage labour and also grazing cattle for others. Instead they try to increase their land and, wherever possible use wage labour to cultivate it.

The Munda combine wood selling and farm wage labour in a more gender-balanced way than the Juang. Their strong involvement in farm wage labour, in comparison to the Juang, is partly due to the greater number of males that participate in farm wage labour, as opposed to wood selling, which is not a traditional activity for them. Being migrants from areas with no tradition of wood selling, they are less ready to sell wood, although for poor households it is seen as an indispensable source of income. The Munda women are much less involved in wood selling than the Juang women.

The Juang are employed less as farm wage labourers than the Munda, mainly due to the fact that only a small percentage of Juang males perform this role. They perceive farm wage labour as women's work and as such, less appropriate for themselves. Another factor for the lower involvement in farm-wage labour of the Juang, in comparison to the Munda, is that wood selling is common among both the Juang men and women and a viable alternative to farm wage labour.

Due to the small number of households belonging to the Santal, it is difficult to draw any valuable conclusions about their involvement in farm wage labour, although it can be said that they do relatively little.

4.4.2.2 Off-farm wage labour

The involvement of both the Gouda and Juang in off-farm wage labour is considerably less than that of the Munda and Santal. Again, statements about the Santal are not very significant due to the small number of households.

Table 58: Involvement of ethnic groups in off-farm wage labour

Ethnic group	% of all adults per group	% of male adult population per group	% of female adult population per group	% Male off-farm wl of all off-farm wl per group	% Female off-farm wl of all off-farm wl per group
All Juang	14.7% (40 of 272)	29.0% (36 of 124)	2.7% (4 of 148)	90.0% (36 of 40)	10.0% (4 of 40)
Munda	44.2% (38 of 86)	61.5% (24 of 39)	29.8% (14 of 47)	63.2% (24 of 38)	36.8% (14 of 38)
Santal	36.4% (8 of 22)	45.5% (5 of 11)	27.3% (3 of 11)	62.5% (5 of 8)	37.5% (3 of 8)
Gouda	7.8% (4 of 51)	4.0% (1 of 25)	11.5% (3 of 26)	25.0% (1 of 4)	75.0% (3 of 4)

The Gouda's involvement in off-farm wage labour is very low in comparison to the other groups. Low-skill off-farm wage labour is considered debasing by the higher-ranking Gouda. But some few members of the lower- ranking *Maghada* Goud work as off-farm wage labourers. The high percentage of female Gouda off-farm wage labourers in comparison to the males, is due to the very small number of Gouda involved in off-farm wage labourers (only four). One of the three women works as a cook for a health-worker in the village, the other two are employed at a local pyrophylite mine.

The Juang generally do not like wage labour. They prefer independent activities, such as wood selling, where they can make their own decisions, as they are not accustomed to working under the supervision of a contractor or employer. Most of those that work as off-farm wage-labourers are employed as stonecutters, where the salary is paid per quantity of work and not by the amount of time worked. This work is done locally, in Kodipasa, and as such, they can make a decision, on a daily basis, as to whether to do the work or not; even, on occasions, deciding at the last minute. Equipped with the necessary tools, Juang men may pass through the village and when asked, where they are off too, they will reply, that they are going to cut stones today. Some time later one may see them sitting in a circle of friends and neighbours, enjoying *handia*. Of course, some of the Juang men enjoy this kind of autonomy at the expense of their women, whose only "autonomy" is to decide whether to sell wood or do farm wage-labour in order to feed their children and husband.

Off-farm wage labour is also an option that is available to young, unmarried Juang men that wish to earn an income in cash for themselves. As with any other income that they may earn, it is up to them to contribute income from off-farm wage labour to the household.

Juang women are hardly involved in off-farm wage labour at all. This is probably due to their large involvement in farming and wood selling. However, young and unmarried Juang women, accompanied by male relatives, may travel far from home, if employed as off-farm wage labourers by contractors. It is an opportunity for them to visit new and different places and meet new people, although there are many stories of bad experiences such as uncontrolled exploitation of the workers by the contractors under such circumstances. The decision to opt for this type of off-farm wage labour is not necessarily made by all the members of a household: the lack of parental authority can result in sons and daughters leaving their village, even

when their labour is needed for agricultural production. How much, if any, of their income, that they will contribute to their family, depends upon the intra-household relations.

The Munda have the highest proportion of off-farm wage labourers, in comparison to the other groups; with a rather high female contribution. This may be explained by the lesser involvement of the Munda in wood selling activities, combined with the fact that they will readily allow their womenfolk to be employed as wage labourers. Off-farm wage labour is an option, that is both socially and economically acceptable to the Munda women. At the same time, Munda men seem to be more prepared to be off-farm wage labourers than their Juang counterparts. This results in a more balanced contribution to the household income on the part of the men, than among the Juang.

4.4.3 Wood selling

If the sale of fuel wood and timber are both considered viable options for income generation, when compared to other sources of income, this then raises the question as to why local people choose different economic strategies to earn their livelihood in such a difficult environment. Economic factors such as the availability of land, farm wage labour, off-farm wage labour and small-scale business, determine the degree to which the various groups are involved in wood selling activities. However, I suggest that in addition culture, caste and gender issues are three important and interlinked factors that help to explain the economic behaviour of the various groups, as has already been shown in previous sections.

The following data illustrates the situation in 1998/99, regarding the importance of wood selling, for the various ethnic groups and for men and women:

Table 59: Involvement of ethnic groups in wood selling

	Total HH	WS HH	In %	Total adults	Adults in WS	In % of all adults	M adults	M adults in WS	In % of M adults	F adults	F adults in WS	In % of F adults	F adults in % of all ws	M adults in % of all ws
All Juang	86	79	91.9	272	163	59.9	124	64	51.6	148	99	66.9	60.7	39.3
Munda	28	22	78.6	86	46	53.5	39	24	61.5	47	22	46.8	47.8	52.2
Gouda	16	4	25	51	6	11.8	25	4	16.0	26	2	7.7	33.3	66.7
Santal	6	2	33.3	22	2	9.1	11	2	18.2	11	0	0	0	100
Juang Kodipasa	66	60	90.9	210	116	55.2	98	45	45.9	112	71	63.4	61.2	38.8
Juang Upper Kansa	20	19	95.0	62	47	75.8	26	19	73.1	36	28	77.8	59.6	40.4

WS: wood selling
M: male
F: female

There are clear differences between the various ethnic groups. The Juang are the main group selling wood, with regard to the population as a whole, as well as with regard to the percentage of wood sellers within their own group. Out of all of the wood selling households in the two villages, 74% are Juang households. Almost 92% of all Juang households are involved in wood selling and almost 60% of all adult Juangs sell wood. Amongst the Juang, there are a higher proportion of wood sellers in Upper Kansa, then in Kodipasa.

With regard to gender, Juang women are heavily involved in wood related activities; two thirds of all Juang women collect wood from the forest to sell. This percentage is higher than among the Juang men; slightly more than 50% of the men sell wood. Moreover, it has been observed that most of the Juang women do collect and sell wood more often and on a more

regular basis than the Juang men. In Upper Kansa, more Juang men do sell wood in comparison to the Juang men in Kodipasa.

The Munda are also heavily involved in wood selling, although not to the same extent as the Juang. There are less Munda women involved in wood selling in comparison to the Juang women and also in comparison to the Munda men. Those Munda men and women who sell wood, do it on a less regular basis than the Juang. The Munda cultivate more land per consumer than the Juang and are more involved in wage labour.

Wood selling is of marginal importance to the Gouda. The percentage of female and male wood sellers is very low, when compared to the other groups. Only 25% of all Gouda households (11.76% of the adult Gouda population) sell wood and it is the Gouda herders that do this. More men (16%) than women (7.7%) do sell wood.

Data for the Santal are from a very small number of households and thus are probably not very significant. The two male wood sellers recorded, sell wood very rarely. The Santal prefer agriculture and off-farm wage labour to wood selling.

4.5 Summary

There are several interlinked factors resulting in the different economic significance of agriculture, wage labour and wood selling for the households of the two villages, for individual households and for households of the various ethnic groups.

Access to land for agricultural production differs between the two villages, the individual households and the households of any particular group. In Upper Kansa access to land for the purpose of shifting cultivation is not the limiting factor for agricultural production. It would be possible for villagers to cultivate more land. But the low land and labour productivity in shifting cultivation, combined with the risk of crop failure, due to environmental factors, makes wood selling a viable option when combined with agricultural production. In Kodipasa access to land of good quality is restricted and the distribution between individual households, as well as between the various groups, is unequal. Most households cannot produce sufficient paddy for their own needs due to the shortage of land and therefore have to earn an income either as wage labourers or wood sellers in order to be able to buy the additional paddy that they need.

In both villages the opportunity to sell wood helps to spread the input of labour over the year and enables the villagers to earn an income in cash. Access to the resources of the forest is given to all of the households in both villages; theoretically anyone can go to the forest and cut timber for sale. Moreover, there is a regular demand for timber and fuel wood in neighbouring villages and in the nearby town.

Wage labour is also open to everybody. However, the demand for wage labour is seasonal and irregular and therefore the availability of wage labour is restricted in comparison to wood selling.

Apart from key economic factors such as access to land, forest resources and wage labour, intra-household relations mainly dependent upon household size, age and gender, are of crucial importance to understand peasant strategies at a household level. They include aspects of the sexual division of labour linked with gender ideologies, ideas about who has to contribute what and how much at which age to the household income, the bargaining power between men and women, young and old. These are all important factors in determining the economic strategies and behaviour of households and individuals under given conditions of access to land, wage labour and wood selling. It has been shown that the economic performance of

these peasant households is not always optimal from a purely economic point of view, as it is the result of the interests, preferences and strategies of individual household members.

Social status and identity (caste and tribe) and interrelated gender ideologies are three important and interlinked factors, which help to explain the differences in economic behaviour and strategies (also with regard to critical events) of the households of the various ethnic groups. Thus, decision-making is not made on a purely economic basis.[41]

Although most households do earn some income from the sale of wood, there are several reasons why the Juang are more involved in this activity than the other groups. They not only form the majority of the local population, but also give less preference to agriculture, in comparison to the other groups. In Kodipasa in particular, they even transfer land to the other groups. Thus, households belonging to the other groups are able to increase their agricultural production with land that they have been able to acquire from the Juang, while these compensate for their loss of land by selling wood, which has a lower return to labour. The resulting costs are mainly shifted to the Juang women who are heavily involved in commercial wood selling.

Thus, under local conditions of agriculture and wage labour, wood selling is of paramount importance to the local economy, although the significance of wood selling varies between the individual households and between the different ethnic groups. It makes strong economic sense to fell trees and sell the timber or fuel wood at the market, as has been shown in chapters 3 and 4. However, the consequences of this kind of forest resource use are not only of an ecological nature (in the form of forest degradation). In the long run, the uncontrolled felling of trees for timber and fuel wood endangers the amount of forest resources available to be sold in the market, or to be used for the individual needs of the villagers. To a certain extent this has already happened in Kodipasa, and the scarcity of resources in the village forest has resulted in local initiatives to control access to and use of these resources.

In the following chapter the institutional frameworks of forest use, in the research area, are outlined in order to gain an understanding of the local use of the forest. These institutional frameworks have to be analysed using an historical perspective. Thus, chapter 5 relates to the official forest policies as well as local forest politics. It links to the above economic analysis, when analysing costs and benefits of managing the forest as common property, as opposed to common pool resources with open access.

[41] See Kurien 1994: His article shows how caste identity affects the patterns of consumption, investment and exchange within three caste communities in Kerala. To analyse in Kodipasa not only patterns of economic activities in the sphere of production, but also in the sphere of consumption, investment and exchange would also reveal differences among the various ethnic groups.
See also the case study of Jackson and Chattopadhyay (2000): they illustrate how ideologies of gender and ethnicity and the practices of three social groups are related to the use and perception of natural resources in a Jharkhand village.

5 FOREST POLICIES AND VILLAGE FOREST POLITICS

The following short history of forest policies in India since the 19th century makes it clear that from the very beginning of British colonial forest policy, ideas about the management of Indian forest resources and about the role of local people were neither homogeneous nor free of contradictions.

But also practices of post-colonial Indian forest policy were neither uniform nor consistent across India. The reconstruction of localised forest policy in Keonjhar in chapter 5.1-5.3, not only indicates the increasing state control over forest resources, but also the limits of the Forest Department to implement rules and regulations in tribal areas.

The analysis of local village forest politics in Kodipasa in chapter 5.4 addresses the issue of forest management based on local initiatives to protect village forest resources without the intervention of the Forest Department. I have deliberately selected villages that are not involved in any official programmes of co-management between the villages and the Forest Department. There are two reasons for this. Firstly, I was interested in evaluating the endogenous potential of a tribal village community in tackling the problem of forest degradation. This gave me the opportunity to verify some of the heterogeneous, contradictory and very general assumptions made about tribal use and management of forest resources. Secondly, the majority of tribal villages located in or nearby forests are not involved in so-called Joint Forest Management (JFM) Projects.

The consolidation of British colonial forest policy was initiated by the establishment of the Imperial Forest Department in 1864, which drew up and passed forest legislation and based the use of forest management systems upon contemporary scientific principles of modern forestry. However, the process of drafting forest legislation for British India was characterized by a vehement controversy within the colonial bureaucracy about the role that the communities and the state should play in the management of forest resources. The discussion revolved around the legal aspects of forest ownership and the capacity or incapacity of rural communities to use forests in a way that did not contradict with the superior interests of the colonial state. Gadgil and Guha (1996:124ff) distinguish three distinct positions crystallizing between the passing of the hurriedly drafted Indian Forest Act of 1865 and its more elaborate follower, the Indian Forest Act of 1878:

1) The 'annexationist' position advocated by among others, the well-known senior civil servant B.H. Baden-Powell, pleaded for total control by the state over all forest areas.
2) The 'pragmatic' position, favoured by among others, the first inspector-general of forests, Dietrich Brandis, argued in favour of state management of ecologically sensitive and strategically valuable forests, whereas the other areas should remain under communal systems of management.
3) The 'populist' position represented most clearly by the Madras government, completely rejected state intervention and proposed the exercising of the sovereign rights of tribal and peasant communities over forest resources.

Underlying these three schools of thought were different perceptions of the historical, political, social and ecological features of traditional forest resource use:

The annexationist position:

Underlying the annexationist position were, on the one hand assumptions of a customary open access of rural communities to forest resources and on the other, historical interpretations of oriental governments as general owners of all unoccupied land, together with wasteland. The exponents of this position argued that any customary use of and access to forest hitherto enjoyed by rural communities was exercised only at the discretion of the respective rulers. Once

the historical right of the oriental state to dispose of or retain for public use the waste and forest area was proven or accepted, the next step was to legitimise the transfer of this right to the colonial state. The annexationist position was further backed by early advocates of conservancy with their negative judgement of indigenous systems of resource management and early suggestions of governmental responsibility for halting environmental degradation. Environmental problems and issues of conservation had already been discussed during the 19th century. Regarding the functional role of forests within a broader ecological system, the consequences of deforestation were assumed to be negative, resulting in changing water levels in large rivers, siltation, decreased local water supply, erosion and avalanches. The indigenous people were perceived as being inherently hostile towards the natural environment and its preservation. They were thought to be ignorant of the ecological functions of the forest and of conservation strategies; carelessly using natural resources. They were therefore held responsible for environmental degradation. Although the reasons for advocates of conservancy demanding state control over forest resources were not necessarily identical to those of commercially oriented forest officials, both "parties" agreed on the policy of excluding local communities from using forest resources without major state control.

The populist position:
Diametrically opposed to such a position, was the total denial of the legitimacy of any state intervention in the forest held by the "populist" advocates, mainly represented by the Madras government. "All instances of the use of the forest by the people should be taken as presumptive evidence of property therein" (in Gadgil & Guha 1996:126). According to this view, a claim of the state over forests was virtually non-existent:

> "... all of them [forests: N.O.] without exception are subject to tribal or communal rights which have existed from time immemorial and which are as difficult to define as they are necessary to the rural population....Nor can it be said that these rights are susceptible to compensation, for in innumerable cases, the right to fuel, manure and pasturage, will be as much a necessity of life to unborn generations as it is to the present.....[In Madras; N.O.] the forests are, and always have been, common property, no restriction except that of taxes....was ever imposed on the people till the Forest Department was created, and such taxes no more indicate that the forests belong to the state than the collection of assessment shows that the private holdings in Malabar, Canara and the Ryotwri districts belong to it" (in Gadgil 1996:127).

The pragmatic position:
Brandis's position was a compromising one; between the 'annexationist' and the 'populist' position. According to him, in certain cases the state had indisputable, superior rights over forest resources. But there was no categorical and absolute right for the state to annex the traditionally grown forest rights of the people. Against the position of Baden-Powell, he took the view that the customary law of rural communities in India, which had evolved over a period of time, gave them the 'right', although not formally documented, to use forest resources. For that reason, he asked for a settlement of rights to be implemented in a "just and equitable manner" (in Gadgil and Guha 1996:129), as far as possible taking into account the customary rights of rural people. Accordingly, he advocated a restricted takeover of forests by the state, in order to avoid conflicting claims on the part of the state and the rural people, by proposing to "demarcate as state forests as large and compact areas of valuable forests as can be obtained free of forest rights of persons" (ibid. 131). The residual forest areas, smaller in size, but more conveniently located for the supply of forest resources, should be left under the control of village communities. Based on the European model, he suggested the creation of three large classes of forest property: state forests, forests of villages and other communities, and private forests (ibid. 131).

Brandis's advocacy for the right of village communities to control their forests was based on his belief in their ability to manage their own affairs. He referred to well-managed communal forests in European countries that were recognized by law and it seemed to him "particularly desirable to strengthen the old village organization by consolidating and ameliorating the grazing grounds, forests and waste land of the village community" (in Gadgil and Guha 1996:133).

Brandis's efforts to defend the traditional rights of the people to forest resources, against the extensive grip of the state failed. The first Indian Forest Act of 1878 predominantly reflected the position represented by the annexationists. It provided for three classes of forest: "Reserved forests", "Protected Forests" and "Village Forests".

The demarcation of "Reserved Forests", which consisted of compact and valuable areas, was aimed at the creation of forests for sustained exploitation by the state: in reserved forests a definite settlement of rights was aimed to secure total state control. The settlement meant either the extinction of private rights, the transfer of them, or in exceptional cases allowed their limited exercise (Gadgil and Guha 1996:134). These rights concerned shifting cultivation, grazing and pasture, grass cutting, lopping boughs and gathering leaves, wood rights, rights to dead and decayed leaves for litter and manure, rights to other forest produce, hunting and fishing etc.

"Protected Forests" were also controlled by the state, although in a less strict manner. In this category, rights were not definitely settled, but recorded. However, detailed provisions "for the reservation of particular tree species as and when they became commercially valuable, and for closing the forest, whenever required to grazing and fuelwood collection", secured the possibility of excluding local users from the forest (Gadgil and Guha 1996:134).

The "village forest" as a third class of forests, were small forest areas in which local communities retained their customary rights, as long as these did not contradict the laws and regulations laid down by the Forest Department.

Based on the legal structure of the Indian Forest Act of 1878, which aimed to maintain strict state control over forest utilization, the "scientific" management of forests enabled the working of compact blocks of forest for commercial timber production. Timber for the production of sleepers was required for the expansion of the Indian railway. Later, the two world wars enhanced the demand for Indian forest products. Commercial timber extraction by the colonial state reflected the cardinal principle of British imperial policy – a self-supporting colonial administrative machine; the Indian colonial Forest Department had to generate sufficient revenue in order to contribute its part in fulfilling this policy. A clear indication of the primary role assigned to forestry may be seen by the fact, that in most provinces the Forest Service was placed administratively under the Revenue Department (Sivaramakrishnan 1995:10). Economic needs and fiscal considerations may hence be seen as the driving factors behind the consolidation of colonial forest policy and for the growing commercial value of Indian forest resources.

In many respects the forest policy of independent India is linked with the colonial past. The Forest Policy Resolution of 1952 judged the fundamental concepts underlying the colonial forest policy as being sound. It just needed to be reoriented; i.e. the commercial orientation persisted, although no longer in the context of imperial interest but in the context of national interest of the independent state (Pathak 1994:21). As Gadgil and Guha (1996:181ff.) point out, the evolution of forest policy since 1947 has to be set in the context of the general development track which India took after independence. Ghandi's scenario for the reconstruction of both the Indian economy and society, after the colonial experience, gave primacy to the rural population. He envisioned a revival of the village communities of the pre-colonial and pre-industrial phase and aimed at the integration of craft production in rural population.

His model was opposed to a project of modernization with industrialization, not only advocated by the first Prime Minister Jawaharlal Nehru, but also by many representatives of powerful interest groups - capitalist merchants and industrialists, technical and administrative bureaucracy and rich farmers.

Gadgil and Guha (1996:186ff) define four stages in the industrial orientation of Indian forestry:

1) 1947-1960: the exploitation of forest resources was still based upon traditional "sustained yield" selection methods of indigenous commercial species, but they were being intensified. However, due to a variety of reasons (inadequate database, failure to take account of rural demands, excessive grazing and fire, and the violation of standing prescriptions) the selection system did not supply the expected yields and a new strategy of intensive forestry was called for.
2) 1960-85: the emphasis was on the production of economically attractive resources by means of plantations of quick-growing, high-yielding and predominantly exotic tree species, which would replace the existing slow growing varieties. 'Production forestry' implied the clearfell logging of existing forest stands and their replacement with plantations. Two distinct kinds of monoculture were aimed for: firstly, to raise eucalyptus and tropical pine plantations for industrial raw materials and secondly, to grow species such as teak and rosewood to be converted into high-quality furniture; in this way generating valuable foreign exchange. Such trends were encouraged by foreign aid agencies. The USAID, for example, believed, that "it would be highly advantageous for the Indian economy to replace a significant percentage of the mixed tropical hardwood species with man-made forests of desirable species such as eucalyptus, tropical pine and teak" (in Gadgil & Guha 1996:188).

   A concomitant of the concept of production forestry was the concept of "social forestry" which was both backed and influenced by the National Commission of Agriculture (NCA). The NCA had been created in 1970, by the Indian Government in order to examine all aspects of agriculture including forestry (Pathak 1994:124; Fernandes 1988:26). Whereas production forestry focused on the production of raw materials for industrial needs, social forestry focused on meeting the non-industrial needs of the people by the production of firewood and timber. However, the performance of diverse social forestry projects in different states, often supported by international donor agencies, brought to light several constraints and problems.
3) The third stage in the industrial orientation of forest policy was the implementation of "farm forestry", which overlapped with the second stage. Mainly due to ecological reasons, production forestry for industrial needs had failed to realize projected yields. From 1975 onwards, millions of farmers had started to plant tree crops on their individual holdings, in order to sell them on maturity to rayon and paper manufacturers.
4) The fourth stage (since 1985) implied the intensive lobbying of the paper and rayon industries, for the allotment of government land as captive plantations along with a massive import of wood and paper pulp.

However, to interpret post-colonial forestry and forest policy as more or less directly and exclusively guided by purely economic reasons would be to ignore other factors, which played a significant part. From the 1970s onwards, the growing international and national discourse on environment began to interfere increasingly with Indian forest policy. This is not to say that the issue of the environmental role of forests was hitherto absent – it has already been mentioned, that environmental arguments were used to legitimise the take-over of forests by the colonial state in the 19th century, and environmental aspects are to be found in diverse policy

documents on the forestry of independent India. "However, environmental considerations were subordinated to the dominant ideology of unlimited growth and industrialisation. Environmental considerations became important only after the rise of environmentalism in the West and the globalisation of the issue of environment" (Pathak 1994:31).

In the late 1960s, environmental considerations in the developed countries shifted from concerns over pollution in their own countries, to natural resource degradation in the developing countries. This globalisation of the environmental discourse found its expression in the United Nations Conference on Human Environment, Stockholm in 1972. Despite conflicts between the North and South, as developing countries felt that they were being hampered by the West in their efforts to achieve economic growth, the Stockholm Conference "implanted the roots of environmental thought in the official discourse in India" (Pathak 1994:33). An institutional beginning in the field of environment was made with the creation of the National Committee on Environmental Planning and Coordination (NCEP), which was entrusted with the responsibility of identifying environmental problems, reviewing policies and carrying out research. The formation of nine sanctuaries in nine Indian states under the title of "Project Tiger", started in 1973 with a grant from the World Wildlife Fund (WWF) and the International Union for the Conservation of Nature (IUCN). This marked the start of environmental action (Pathak 1994:34). The Wildlife Act was drafted to accord complete protection to wildlife from the local population.

In 1980, a separate Department of Environment was created by the Central Government under the Ministry of Science and Technology. This Department was a central agency for environmental protection, eco-development work and the environmental appraisal of development projects. Policy formulation on forests, land use, oceans and the air was one of its functions (Pathak 1994:50). In 1985, the Department of Forests, hitherto under the Ministry of Agriculture, was merged with the Department of Environment to form a separate Ministry of Environments and Forests (Pathak 1994:56). This institutional and administrative reorganisation, on the one hand reflected the growing importance of environmental issues on the national political landscape. On the other hand, the merger of these two departments (Forest and Environment) resulted from their conflicting and controversial viewpoints, with regard to the forests prior to their union. The Forest Department was more inclined to commercially oriented production forestry, whereas the Department of Environment promoted protection forestry. However, the strategy of the central Government to move the Forest Department out of the Ministry of Agriculture, in order to give environmental considerations more weight, did not solve the problem of internal struggle, which now continued under the common organisational umbrella of the Ministry of Environments and Forests (Pathak 1994:56).

Environmental considerations of the newly created Department of Environment are well reflected in the Sixth Five Year Plan (1980-85); the Plan expressed the concern that there had been a rapid depletion of forests, and clearly formulated the objective of forest conservation. States were accused of destroying forests to extract revenue and Forest Departments were blamed for reducing the genetic base of natural forests by their conversion, without considering the disastrous repercussions on the environment and economy of the country. Along with the conservation of forests, complete protection of representative samples of land, water, flora and fauna, through the creation of sanctuaries and biosphere reserves, were strongly recommended. Furthermore, it was emphasised that the remaining forests should not be logged at all, even if this meant that pulp had to be imported. (Pathak 1994:53) The concept of social forestry was supported for environmental reasons: it was conceived that this method would potentially reduce the pressure on natural forests, and differed from the recommendations of the Forest Department, namely to reduce pressure on forest for production forestry.

The Forest Department, for its part, took over the environmental discourse to secure and extend control over forest resources, without clearly shifting its commercial and revenue-oriented position to more protective and conservative practices of forestry activities. This strategy is visible in an attempt by the forestry establishment to expand its control over forest resources in the draft Forest Bill of 1981, prepared by the Ministry of Agriculture: this policy document retained the commercial orientation and the territorial monopoly of Forest Departments over forests by simultaneously accusing forest dwellers of environmental degradation:

> "Ecological considerations were ambiguously placed in conjunction with deriving benefits from forests, leaving wide gaps for the Forest Departments to continue traditional forestry practices and even the conversion of natural forests. The policy blamed the local people for bringing about the depletion of forests and, thus, made out a case for larger powers for the Forest Department over the forest dwellers" (Pathak 1994:54).

The Draft Bill of 1981 was rejected under considerable pressure from social activists, environmentalists, legal and other professionals. This rejection may be considered the beginning of the strengthening of an approach, which attested local people a different role in their relationships with the forest. In 1980 the Ministry of Home Affairs constituted the "Committee on Forests and Tribals in India" to suggest a re-orientation of forest policy, in order to serve the tribal economy. The report, delivered by this committee in 1982, accused the Forest Departments of treating the forests as a source of revenue, and of destroying the tribal means of subsistence by the destruction of natural forests. The Forest Departments were blamed for alienating the tribals from the forests. "The Committee recommended harmonising the national, regional and local interests in forests and recognising the symbiosis of the local people with forests in forestry works" (Pathak 1994:55).

Poffenberger and Singh (1996:62) state that since 1988, there had been indications of a shift towards a more active involvement of local communities. The Indian National Forest Policy of 1988 and the Joint Forest Management (JFM) Resolutions made on 1st June 1990, combined with some sixteen state-level resolutions and government orders, began reshaping the environmental policy, acknowledging the need to give more rights and authority to community groups.

The Joint Forest Management Resolution of 1990, referred to the National Forest Policy of 1988 and resumed the idea of the participation of forest communities in forest protection and management:

> "The National Forest Policy, 1988, envisages people´s involvement in the development and protection of forests. The requirements of fuelwood, fodder and small timber such as house-building material, of the tribals and other villagers living in and near the forests, are to be treated as first charge on forest produce. The Policy document envisages it as one of the essentials of forest management that the forest communities should be motivated to identify themselves with the development and protection of forests from which they derive benefits." (Government of India 1990; no.6-21/89-F.P.)

This somewhat more "people-oriented approach" is still characterised by a paternalistic attitude towards "forest communities", who are to "be motivated to identify themselves with the development and protection of forests". Moreover people's participation is envisaged first and foremost for the regeneration of already degraded forests.

However, the issuing of the Joint Forest Management Resolution has gained considerable importance in several states of India; Orissa being one of them. Thus it may be said that towards the end of the 20th century, Indian forest policy partly includes elements of the "pragmatic" position, although these have been criticised by the followers of a more "populist" approach for not giving enough autonomy and control over forest resources to local people.

It was not only global "environmentalism" which influenced recent debates about the forests and peoples of India, but also the international discourse about 'indigenous people' and their role with regard to natural resource management. In this context the role of the *adivasi*

(tribal peoples of India) as primary custodians of nature, whose participation was required in order to conserve the rapidly degrading forest resources of India, was emphasised by advocates of a people-oriented forest policy.

A closer look at the forest situation in Orissa and Keonjhar, on one hand sheds light on the localised version of the Indian colonial and post-colonial forest policy. On the other hand, this forest policy has evolved in the context of a high percentage of tribal population.

5.1 Colonial forest policy in Orissa and Keonjhar

The history of forest policies in Orissa and in Keonjhar shows many traits identified as general developments of forest control and management in India, which were initiated by the British and carried forward by the independent State. However, what might be called the "grand story" of this aspect of environmental history of India, in reality took place in the form of many local histories in different places under different local circumstances. Even within smaller regions of India, such as Orissa, the process of increased state control over forest resources did not take place simultaneously or in a uniform manner throughout the region. This was partly to do with the complexity of the political situation of Orissa. At the beginning of British colonial rule in Orissa in 1803, the area known today as Orissa consisted of two political settings, which were linked to specific historical and environmental conditions: the *Garjat* and the *Mughal bandi* areas.

The *Garjat* area in those days consisted of 24 tributary chieftains or tributary *mahals*, also referred to by the British as *Tributary, Feudatory* or *Princely States*. These were semi-independent territories that were ruled by *rajas*, who made payments either in cash or kind to the *Maratha* rulers. Sometimes the *rajas* were reluctant to make these payments, or on occasions, did not make any at all. These little kingdoms were situated in northern, western and central Orissa, characterized topographically by hilly and mountainous areas and plateaus interrupted by river valleys. With the exception of the river valleys, they were thickly forested and thinly populated, difficult to access and thus difficult to control, be that by the *Maratha* rulers, the Mughal Empire or any other empires in the past.

Any centralised state that claimed power over Orissa in the past had direct control only over the coastal plains formed by the deltas of the rivers, which ran from the mountainous region in the west (Mahapatra 1997:899). This was the *Mughal bandi* area, the plain and open part of Orissa, with fertile areas and a higher population density. In the second half of the 18th century, it was under the direct control of the *Maratha* government. Prior to this, it was controlled by the *Nawabs* of Bengal, and from the end of the 16th century to the beginning of the 18th century it was at first controlled by the Moghul Empire of Akbar and later Aurangzeb.

The British had to deal with these two patterns of political rule in Orissa. Their policy resulted in various degrees of integration, subordination and control of the various areas within the framework of British colonial rule. Some areas came under direct control of the British. Some of the *rajas* of the princely states had signed treaties acknowledging British suzerainty while maintaining a large degree of autonomy over the internal administration of their states. Keonjhar was one of these tributary states. It had signed a treaty with the British in 1804.

This political diversity of the various areas of Orissa under British rule is also reflected in the legal situation with regard to forests. On the eve of independence and before the merger of several princely states into present-day Orissa, there were three categories of forests in Orissa (Fernandes 1988:29ff):

1) The government-owned forests under the management of the Forest and Revenue Departments of the erstwhile provinces of Bihar and Orissa at the time of independence. In

these forests the ownership was established by two legislative measures: either by the Madras Forest Act of 1927 (in Ganjam and Koraput districts and in the Balli*guda* and G. Udayagiri talukas of Phulbani district) or by the Indian Forest Act of 1927, which applied to the remaining districts.

2) The forests of the princely states of the Eastern States Agency, which merged with Orissa in January 1948. Keonjhar was one of the premier states of the Eastern States Agency, i.e. its forests belonged to this category (N.O.)
3) The zamindari forests, that were either under the control of the princely states or the State Government.

In the princely states, each state had its own rules and regulations regarding the forests. It was only several years after independence and after the merger of the Princely States with the independent State of Orissa, that all rules and regulations for forests in the State of Orissa were incorporated as part of the Indian Forest Act of 1927, in a process of standardization of a national forest policy, which took place in 1954, when an amendment to the Indian Forest Act of 1927 was passed. The Orissa Forest Act of 1972 further enhanced this process.

However, even during the colonial period, the British had tried to push ahead their ideas and policies with regard to the management of forest resources, and to convince the rulers of the princely states to adopt them. The following short historical review, on forest management in Orissa, illustrates the British efforts to not only bring forests under the control and management of institutions of the Colonial Government, but also to persuade the princely states to strengthen their control over their forests:

> "The actual management of forests in Orissa started in 1883-84, when the Orissa Forest Division came into being for the first time. Initially the division had only 267 sq. miles to its credit, but gradually demarcations for settlement and reservation were taken up. Orissa was separated from Bengal and a new State of Bihar and Orissa came into being in 1912, during which two more forest divisions had started functioning at Puri and Sambalpur [two districts of Orissa: N.O.]. During 1936, the state of Orissa became independent [i.e. it was separated from Bihar: N.O.]. By this time, a total of four forest divisions existed in the State - Angul, Puri, Sambalpur (East) and Sambalpur (West).
>
> The same year the Forest Department was formed and brought under the administrative powers of the 'Conservator of Forests' at Angul. After the merger of the Ganjam district with Orissa, Ganjam Forest Division, which was initially attached to the Madras Province got transferred to Orissa.
>
> However, the forests of the Garjat States [i.e. princely states: N.O.] were under the administration of the Rajas. Some of the big states like Mayurbhanji and Bolangir-Patna, had fullfledged Forest Departments functioning on terms similar to those in the provinces of British India. The Garjats were under a political agent with headquarters at Sambalpur. The Conservator of Forest, posted at Sambalpur, acted as adviser to these states in matters of forestry; a post held by Dr.F. Mooney for long. Orissa had already 9 forest divisions existing in 1947 under a conservator of forest at Angul" (CPSW 1994:41).

In the Settlement Report, 1892-1900, of Keonjhar State (Government of Orissa 1964:62f.) a very short summary of the situation of the forest in the then Princely State of Keonjhar is given, together with strong recommendations to strengthen central control over forest resources and to introduce forest conservancy rules. The report does not necessarily document the condition of the forests in Keonjhar, but it undoubtedly reflects the spirit of the age of British Forest Policy in India as discussed in previous chapters:

> "Up till 1892, little or no attention had been paid to prevent the primeval forests in Upper and on the borders of Lower Keonjhar from being denuded of its valuable shade. The subjects on the State mercilessly felled or destroyed whole forests of magnificent trees for *Toila* cultivation [shifting cultivation: N.O.], or for obtaining *lac*, and the income derived from these sources would be considered as an advantageous gain to the State. In that year the Government, on the report of the Conservator of Forests regarding the forests of the Tributary Mahals, Orissa, thus wrote to the Superintendent:

> *The Lieutenant-Governor considers the conservation of these forests to be a matter of the greatest importance, and I am to request that influence may, as far as possible, be brought to bear on the Chiefs by asking them, in their own interests, to place the forests in their States or portions of them, under the management of the Forest Department, and that in any case the Chiefs may be induced to obtain from that Department the Services of trained Foresters with a view to carry out the forest conservancy rules. The Chiefs should at the same time be asked to strictly prohibit the felling of immature Sal trees having a girth (at 4 feet from the ground) of less than six feet as suggested by the Conservator.*
>
> The Maharaja [Dhanurjay Bhanja: N.O.], on receipt of the Government orders, became sensible to the advantages of having the forest rules enforced in the State, and has since then opened a small department for regulating export and realising fees. The income from forest and forest produce has greatly increased since then, and is fast developing, though the conservancy rules have not been strictly followed in all parts of the State. The prohibitory orders for felling valuable timber could not be extended to the hills inhabited by the Bhuyans and Juangs, who, as noted before, live chiefly on *toila* cultivation, and in the jungly portions of Upper Keonjhar proper scrutiny for want of regular supervising establishment is not being kept.
>
> The whole establishment that is being entertained for the Forest Department at present consists of one head Muharrir [clerk], two Muharrirs and 12 peons for Lower Keonjhar and the *dandpats* [an administrative division in ancient Orissa consisting of a group of villages, or its head: ODG 1986: 454] of Rebna and Hunda in Upper Keonjhar and one Muharrir and three peons for the Nayagarh Subdivision of Upper Keonjhar. It is high time now that the settlement operations have been wound up to consider the question of entertaining a regular forest staff under a trained and decently salaried Forester from Government employ. The State is a comparatively big sized one, and to supervise the working of the conservancy rules in the extensive forest areas of the State, an establishment like the one at present entertained will never do. The Maharaja has promised to consider the question in his next year's budget, and he should be induced by all means to have a regular Forest Department opened if the umbrageous tracts of valuable timber in Upper Keonjhar is not to be deforested any more by reckless felling of green trees. *Toila* cultivations in the hills cannot, of course, be absolutely stopped, but accessible areas in them containing promising growths might well be reserved as State Forests, and the rest made over to the hillmen for their *toila*."

The perception of people as 'merciless' destroyers of forests and valuable timber - with a special mention of tribal people and their practice of shifting cultivation - together with considerations of revenue generation from forest resources as well as aspects of conservancy are the key elements of this report. However, the document also indicates the difficulties of implementing conservancy rules, of supervising large forest areas and of trying to put a stop to shifting cultivation. It specifically mentions the Bhuiya and Juang area, where the new forest policy could not be implemented.

The policy of "reserved trees" was already at work at the beginning of the 20th century. Included in this Settlement Report is a table of twelve timber-yielding tree species, which at that time were already prohibited from being felled without a licence. Yet again, it is also specifically mentioned, that this rule was not in force in the Bhuiya and Juang hill tracts. The subjects of the State were also prohibited from cutting down any fruit bearing trees such as mango, jackfruit (*Artocarpus integrifolia*), *beheda* (*Terminalia belerica*), *harida* (*Terminalia chebula*), etc. However, there is no information on how far this policy was implemented. In addition, there is a table, which estimates the income that would be obtained by the State from forest and forest produce for the year 1900-1901. The estimated income from the forests of Upper Keonjhar (including the Bhuiya and Juang hill tracts) in contrast to that from the forests of Lower Keonjhar gives no mention of any income from forest cesses. The Settlement Report clearly states that the people living in the tracts of Upper Keonjhar did not pay any taxes for firewood or for using timber for their houses and ploughs, "as the condition of the people is not such as to warrant the levy of extra fees over their land *jama* [annual rent or revenue]" (ibid.:83). The people of Lower Keonjhar on the other hand paid "a house-tax for using bamboo and other minor wood for their dwelling houses, for the construction of ploughs and for using firewood and charcoal" (ibid.: 83).

During 1906, the first trained ranger was appointed and an attempt was made to strengthen the organisation of the Forest Department. When in 1907 the State of Keonjhar came under the direct management of the British Government, due to several years of political unrest, the reservation of forest blocks was initiated. The selection and demarcation of *reserved forest* blocks was advanced by the appointment of the first Agency Forest Officer, A. N. Grieve, in 1911 and had virtually been completed by 1924. The selection and actual demarcation of the *protected forests* were initiated at the close of the settlement in 1915 and completed not long afterwards. However, it was not until 1930 that reserved and protected forest blocks began to be managed according to systematic working plans. The first of these was designed by a Dr. Mooney, the then Forest Adviser (Working Plan 1984-85:97f). In the past, between 1910 and 1930, the Bengal Timber Trading Company had a lease that permitted them to fell as many trees as they wished, during the period of their contract. The exploitable girth of the timber was fixed at approximately 1.5 metres. The lease had been given for revenue purposes. The production of sleepers by the Bengal Timber Trading Company, from the unrestricted felling of trees in some forest areas of Keonjhar, for extensive periods, reduced these in many cases to a pole crop (ODG 1986:21 / Working Plan 1984-85:97).

Under the British forest advisers, the forests of Keonjhar were divided into three main categories, which defined the rights and concessions of the people (Appendix I in ODG 1986:36). These referred to the use of forest products such as timber, firewood, bamboo and "Minor Forest Produce" such as fibre, honey, wax, leaves and grass, edible fruits, roots and flowers, as well as to grazing rights. It clearly stated under which circumstances these products may be collected for personal use or for sale and in the latter case the rates were fixed. The document indicates that certain categories of people got preferential treatment, in so far as the restrictions were less rigid for them. These categories included the "aboriginal tribes, landless or poorer classes".

1) In "A" class reserved forests reservation was considered absolute. However, some rights were conceded for "aboriginal tribes" and other categories of local users: "aboriginal tribes, landless, or poorer classes" were allowed to remove for the purpose of sale naturally fallen firewood" (Appendix I in ODG 1986). For an annual payment, they were allowed to collect minor forest produce such as fibres, leaves and grasses, honey and wax from "A class reserved forests" in restricted quantities, e.g. one head load of firewood per day. Edible fruits, roots, flowers and leaves were free for "aboriginal tribes". Timber was free to cesspayers (local taxation), but it could only be obtained with prior permission from the Forest Department. There was to be no free grazing in reserved forests. No special mention is made regarding shifting cultivation, however, it is clear that it was not permitted.
2) In "B" class reserved forests, the rights of the local users were less restricted, the forest was meant for the *Nistar* (usufruct) of the villagers. "B class reserved forests" were also known as "demarcated protected forests". The collection of firewood and minor forest produce was free for cess paying villagers that were "situated within a convenient radius of B class Reserved Forest". Timber for agricultural implements was also free. There was no free grazing allowed in such forests, however, the rates for grazing were less than in "A" class reserved forests. There were no special rights for tribal people mentioned for the use of this type of forest.
3) In addition to "B" class reserved forests, there were village forests, also called *Khesra* forests, which were neither surveyed nor demarcated but were managed by the Forest Department. They were also known as undemarcated protected forest. Unreserved and reserved species in such forests were free, if used for agricultural implements. "All Pans [a scheduled caste: N.O.] and members of the indigenous tribes and all persons of poorer

classes and landless labourers are allowed unreserved trees for their personal use as well as for sale and reserved trees for personal use". Firewood was free; as was the collection of bamboo, minor forest produce and grazing. No special mention is made about the practice of shifting cultivation: it is neither explicitly allowed nor forbidden.

The same rights and concessions are still in force today, except that the schedule of rates was revised and slightly increased by the Forest Department in 1977 (ODG 1986:22). The list of species declared as "reserved species" steadily increased over the years and by 1959 it already contained 27 species (Working Plan Keonjhar 39-40).

A report on "Working Plan for the Reserved Forests of Kendujhar State" prepared in 1929, shows the following numbers for forest areas coming under the category of reserved and protected forests (ODG 1986:27f):

Area of State:	8018.64 km^2
Reserved Forest:	1570.84 km^2
Protected Forest:	388.50 km^2

Unfortunately the areas of "A class" and "B class" reserved forests are not indicated. However, the total classified forest area amounts to 1959.34 sq. km. These figures show that in the period of approximately 30 years, from 1892, large forest areas in Keonjhar Princely State became classified as reserved forest and to a lesser extent protected forest, although the actual management of such forests, using systematic working plans had not, at that time been implemented.

However, in the Bhuiya and Juang *pirhs*, which cover a total area of 1258.74 km^2, no forests had been declared reserved or protected forest at that time (ODG 1986:27).

According to a revised working plan in 1945-46, the total classified forest area of Keonjhar district, immediately prior to the merger with Orissa State was roughly the same as in 1929, with 1997 km^2. In this plan, some Khesra forest was mentioned (ODG 1986:28):

Reserved forest:	1523 km^2
Demarcated protected forest:	264 km^2
Keshra:	210 km^2

5.2 The forest situation in Keonjhar after independence

In the postcolonial period in Orissa, as well as in Keonjhar district, the policy of state control of the forest, which had been moulded by the British colonial past in India, was consolidated. After the merger of the ex-princely state of Keonjhar into the state of Orissa, the Indian Forest Act of 1927 was extended to include Kendujhar district, in the Administration of Orissa State's Order of 1948. The Orissa Amendment Act 11 of 1954 further amended the India Forest Act of 1927, by the addition of section 20A to this Act. This stipulated that any forest land or wasteland in the merged territories, which had been recognised by the previous ruler as reserved forest, in pursuance of any law, custom, rule, order, working plan or register, etc., immediately before the merger was deemed to be reserved forest for the purposes of the Indian Forest Act (ODG 1986:29).

All other than reserved forests were classified as *protected forest* according to the Indian Forest Act of 1927. This Indian Forest Act of 1927 remained in force until it was replaced by the Orissa Forest Act of 1972, which contained provisions similar to those of the Indian Forest Act of 1927, regarding forest reservation, protection, contracts and control etc.:

> "Forest recognised in the merged territories, as Kheshra forests, village forests or protected forests or forests other than reserved forests by whathever name designated or locally known, shall be deemed to be protected forests within the meaning of this Act and provisions of subsections 2 and 3 shall mutatis mutandis apply" (The Orissa Forest Act 1972, Ss. 81).

Thus, under the Indian Forest Act of 1927 and Orissa Forest Act 1972, there were no legal distinctions made between "A" Class or "B" Class reserve forests, or between "Demarcated Protected Forests" (DPF) and "Undemarcated Protected Forest" (UDPF). A forest was either a reserved or a protected forest under this law (ODG 1986:29). Nevertheless, the categories of "demarcated protected forest" and "undemarcated protected forest" are still in operation, in Keonjhar district today. In the Orissa Forest Department Code 1979, protected forests are subdivided into "Demarcated Protected Forests" and "Undemarcated Protected Forests":

> "The protected forests are classified into Demarcated Protected Forests and Undemarcated Protected Forests. The Demarcated Protected Forests are those which have been declared to be closed under Section 34 (c) of the Orissa Forest Act" (Das & Routray 1996:89).

Section 34 (c) of the Orissa Forest Act 1972 states:

> "The State Government may, by notification declare that any portion of such forest [demarcated protected forest; N.O.] as may be specified in the notification shall be closed to grazing and removal of any forest produce for such term as the State Government think fit for the plantation and natural growth of the forest" (Das & Routray 1996:287).

Section 36 of the same Act specifies the following matters, for which the State Government may make rules and regulations in protected forests:

> a) the cutting, sawing, conversion and removal of trees and timber and the collection, manufacture and removal of forest produce from protected forests;
> b) the granting of licenses to the inhabitants of towns and villages in the vicinity of protected forests to take trees, timber or other forest produce for their own use, and the production and return of such licenses by such persons;
> c) the granting of licences to persons for felling or removing trees or timber or other forest produce from such forest for the purposes of trade, and the production and return of such licences by such persons;
> d) the payments, if to be made by the persons mentioned in clauses b) and c) for permission to cut such trees, or to collect and remove such timber or other forest produce;
> e) the other payments, if any, to be made by them in respect of such trees, timber and other forest produce, and the places where such payment shall be made;
> f) the examination of forest produce passing out of such forests;
> g) the alienation, clearing and breaking up of land for cultivation or other purposes in such forests;
> h) the protection from fire of timber lying in such forests and of trees reserved under Section 34
> i) the cutting of grass and pasturing of cattle in such forests;
> j) hunting, shooting, poisoning water, setting traps or snares and collection of wild life in such forests;
> k) the protection and management of any portion of a forest notified under Section 34; and
> l) the exercise of rights referred to in Section 33

Penalties imposed for the contravention of Section 34 or of rules under Section 36 of the Orissa forest Act 1972 concern the following acts (Das 1996:288f):

> Any person who:
> a) fells, girdles, lops, taps or burns any tree reserved under Section 34, or strips off the bark or leaves from, or otherwise damages any such tree;
> b) contrary to any prohibition under Section 34, quarries any stone, or burns any lime or charcoal, or collects, subjects to any manufacturing process, or removes any forest produce;
> c) contrary to any prohibition under Section 34 breaks up or clears for cultivation or any other purpose any land in any protected forests or cultivates or attempts to cultivate any such land in any manner;
> d) sets fire to such forest or kindles a fire without taking all reasonable precautions to prevent it spreading to any tree reserved under Section 34, whether standing, fallen or felled, or to any portion of such forest notified under the said sanction;

e) fells any tree or drags any timber so as to damage any tree reserved as aforesaid;
f) permits cattle to damage any such tree; or
g) infringes any rule made under section 36
shall be punishable with imprisonment for a term which may extend to one year and with a fine which may extend to two thousend rupees and shall also be liable to pay such compensation not being less than the value of the damage caused to the forest as the convicting Court may direct to be paid.

Undemarcated protected forests include "all other protected forests and all unreserved lands". The growth of undemarcated protected forests is under the management of the Forest Department, while the land itself is managed by the Revenue Department (Das & Routray 1996:89).

The Forest Department may classify any type of forest as reserved or protected. The situation of the forest area of Keonjhar district in 1993 was as follows:

Table 60: Forest in Keonjhar district

Geographical area	8303.0 km^2	100%
Total Forest Area	2494.35 km^2	30.04%
Per Capita land area (in ha.)	*0.621*	
Per Capita Forest Area (in ha.)	*0.187*	
Density of Population per km^2	*161*	
Total Forest Area	2494.35 km^2	100%
Reserved Forest	1833.02 km^2	73.49%
Demarcated Protected Forest	648.41 km^2	26.00%
Undemarcated Protected Forest	12.68 km^2	0.50%
Unclassified Forest	0.24 km^2	0.01%

(Data from the Government of Orissa: Orissa Forests 1993. Statistical Branch, Office of the Principal Chief Conservator of Forests, Bhubaneswar.)

In the 1990s, most of the forest in Keonjhar District was classified as reserved, while the remainder belonged to the category of demarcated protected forest. Undemarcated protected forest was almost non-existent.

These official categories or legal classifications, however, give no insight into the natural qualities of the classified forest areas: whether a forest is open or closed, the crown density, age or species of the trees etc. However, a statement made in the ODG in the 1980s, was still valid for the situation in the 1990s:

"The present forest area as reported in 1984 thus works out to 30 per cent of the total geographical area of the district. (...) The area of the reserved forest comes to 22.20 per cent of the geographical area of the district against the State [Orissa, N.O.] average of 16.05 per cent. It may further be stated that much of what is stated as reserved or protected forest does not contain forest growth worth the name due to large scale encroachments and pilferage of timber by contractors and local people.
Local enquiry reveals that tribal migrants from Singhbhum and Mayurbhanj districts have cleared about 3,237 hectares of reserved forests in Atai, Rebana, Kalapat, Padapur reserved forest. Extensive encroachments have also been done by local Adivasis in Boula and other reserved forests. Both migrants and local people have also been made extensive encroachments in Telkoi and Bhuyanpirh ranges. [areas of Juang and Bhuiya tribes, N.O.] Besides, extensive forest area in Telkoi, Harichandanpur and Banspal Blocks are affected by shifting cultivation by Bhuyans and Juangs. According to the opinion of the local forest officials, though legal forest has somewhat increased, its density and yield has considerably decreased over the years" (1986:29).

5.3 Forest policy in the Juang and Bhuiya area

What is the situation in Upper Keonjhar, which is inhabited mainly by the Juang and Bhuiya? It may be said that stronger restrictions over forest use in the tribal areas of the Juang and Bhuiya were implemented at a later stage than in other areas of the district. Before the implementation of the Orissa Amendment Act 11 of 1954, forests in these areas were considered *Keshra* forests, i.e. forests with fewer restrictions for the local people than 'A' or 'B' class reserved forests. With the implementation of this Act, the *Keshra* forests of the Juang and Bhuiya were classified as *protected forests* and were covered by the rules and regulations for such forest areas. However, until the end of the 1970s, the forests in the hills inhabited by the Juang and Bhuiya had not, by and large been surveyed and the area did not include any *reserved forest*, to the disapproval and regret of the Forest Administration:

> "The vast unsurveyed forest area of Bhuyanpira and Juangpira which extends up to Telkoi Tahsil on the west of Kendujhargar needs a special mention though the area does not include any reserved forest. This beautiful patch of forest has been continuously subjected to shifting cultivation and the aboriginal tribes of the area ruthlessly cut down the trees in the steep hill slopes for *podu (Jhooming*) cultivation every year. In this process most of the valuable species like Sal, Asan, Bija, Sisoo and Gambhar have been taken out of the forests" (Mahapatra 1984/85:45).

However, since 1978 the Forest Department has increasingly gained control over the forest of the Juang and Bhuiya. In the meantime, several forest areas have become *Proposed Reserved Forests* and *Demarcated Protected Forests*. In 1986, the B.J.P. range (Bhuiya-Juang-Pirh range) was created as a separate range, which encompasses the forests of Kodipasa and Kansa. Previously, the forests of the B.J.P. range were part of the Suakati section. Unfortunately there is no data available on the total size of the B.J.P. range and its actual forest cover. According to the B.J.P. range officer, most of the forest areas within this range are highly degraded. This is one of the reasons, why the Forest Department does not commercially exploit forests of the B.J.P. range. According to the officers of the range, it would take rather a long time to gain any commercial benefit from the forest. As it consists mainly of pole crops, timber production would not be profitable for the Forest Department. Moreover, there has been a general shift in the state's forest policy, away from the commercial aspects of forest management, towards conservation and protection of forest areas. Thus, according to statements made by the forest officers, the only duty of the Forest Department is "to protect the forest" in the Bhuiya-Juang Pirh (personal communication 1999).

In 1998, the B.J.P. range included 37 blocks, which were in the process of obtaining the status of reserved forest. Since, 1978, 21 blocks, covering a total area of 87.9 km^2 have been classed as proposed reserved forest (B-class), under Section 4 of the Notification Orissa Forest Act, 1972, i.e. they were in the process of being legally classified as reserved forest. Section 4 of the Notification Orissa Forest Act, 1972 states:

> "Whenever it is proposed to constitute any land a reserved forest, the State Government shall issue a notification in the official Gazette:
> a) declaring that it is proposed to constitute such land a reserved forest
> b) specifying as nearly as possible, the situation and limits of such lands; and
> c) appointing an officer (herein called "The Forest Settlement Officer") to inquire into and determine the existence, nature and extent of any rights or privileges alleged to exist in favour of any person in or over any land comprised within such limits, or in or over any forest produce, and to deal with the same as provided in this chapter" (Das & Routray 1996:272).

Finally, such forest will be declared as *reserved forest* under Section 21, Orissa Forest Act.

Since the mid 1980s, 16 blocks (142.5783 km^2) are in the process of being classified under Section 4, Orissa Forest Act, 1972, for classification at a later date as *reserved forest*. Cur-

rently they are classified as *demarcated protected forest*. Thus, a total of 230 km^2 forest in the tribal area of the Juang and Bhuiya are currently in the process of becoming reserved forest, which will result in a stricter control by Forest Department over the use of forest resources by the local communities.

The remaining forest is also classified as *demarcated protected forest*, but has not yet been registered under Section 4. The forest area in Kodipasa and Kansa comes under this category. In order to determine the total area of forest in the B.J.P. range, the settlement records of the 230 villages would have to be evaluated. These records include quantitative data on the areas classified as forest, which either come under the direct control of the Forest Department, or the Revenue Department. Even if this information were to be obtained, no clear statement could be made about the quality of the various forests. Areas registered as forest, during the 1970s land settlement of the Bhuiya-Juang Pirh, may no longer fulfil the criterias to be defined as forest. Thus, extensive ground surveys would be necessary in order to qualify the quantity and quality of forest areas in the B.J.P. range. However, according to the range officer of the B.J.P. Range, most of these forests are strongly degraded.

According to local foresters, there are two major problems for the forest resources in their range: shifting cultivation and tree felling, either for timber or firewood for commercial purposes. However, they seem to be unable to agree upon the seriousness of these two problems. Some of the foresters hold the belief that shifting cultivation is the main cause of the degradation of the forest in their range, while others perceive that the felling of trees for fuel wood and timber is the major concern. Others assume that it is large-scale timber smuggling that is the main cause. According to them, this is carried out mainly by outsiders and causes serious damage to the forest, whereas the wood and timber selling activities of the Juang and other poor people, are regarded to be less harmful. The Forest Department has not carried out any serious quantitative and qualitative evaluation in order to compare the detrimental effects of the various activities upon the forest.

5.3.1 Policies against shifting cultivation

The attitude of both higher and lower ranking forest officials versus tribals that practice shifting cultivation and are dependent upon the sale of timber and firewood, is a mixture of reprobation, comprehension and limited tolerance, of laissez-faire and selective sanctions. In cases where the tribals contravene the forest laws and regulations, they are at the mercy of the Forest Department.

Shifting cultivation is not tolerated in *reserved* or *demarcated protected forest* that comes under Section 4 Notification Orissa Forest Act, 1972. If the forest dwellers encroach on such forest, the foresters may file cases against them. If any forest is going to be classified as *reserved forest*, it is up to the settlement officer, from the Forest Department to suggest that forest under shifting cultivation in such areas shall be excluded from the *reserved forest* and left for the villagers to cultivate. The claim of the state to control shifting cultivation is clearly expressed in the Orissa Forest Act, 1972, Chapter II, Section 10:

> "(1) Claims relating to the practice of shifting cultivation in any land notified under Sec. 4 shall not be admitted but if the Forest Settlement Officer considers that some portion of the land under settlement needs to be excluded to provide sufficient land for cultivation, he may, after considering the objections of the Forest Officer, if any, representing the Forest Department (...) or the Divisional Forest Officer, make a report to the State Government containing his recommendations for alteration of the limits of the land.
> (2) The State Government may, after considering the recommendations so made, sanction the alteration proposed by the Forest settlement Officer either in whole or with such modifications as they deem fit and thereupon the Forest Settlement officer shall pass an order altering the limits of the land as sanctioned by the State Government.

(3) The practice of shifting cultivation shall, in all cases, be deemed a privilege, subject to control, restriction and abolition by the State Government" (Das & Routray 1996:275).

The fact that land used for shifting cultivation in the Bhuiya-Juang Pirh has not been settled in categories of agricultural land with land titles, indicates the claim of the State to control the practice of shifting cultivation. As explained in chapter 3.2.3, land under shifting cultivation was recorded as village forest (*grama jungle*) and grazing area under *Rakhit Khata* and/or as jungle of *Abad Jagya Anabadi* (cultivable waste) or *Abad Ajagya Anabadi* (non-cultivable waste land) in Kodipasa and Kansa. All such land is by law government land (in contrast to private land); the soil of such government owned land is under the control of the Revenue Department, but any forest vegetation on such land comes under the control of the Forest Department. Thus, any intervention by the Revenue or Forest Department, over the way in which the villagers use such land is considered legal. Shifting cultivation is tolerated or restricted at the good will of these departments and according to their policies and strategies. However, it is well known that the livelihood of the tribal forest dwellers is in many cases still mainly based on shifting cultivation. Thus, in the majority of forests belonging to the B.J.P. range, which are not in the process of being reserved, shifting cultivation is tolerated within certain limits. As long as villagers practice shifting cultivation nearby their settlements and only cultivate within a limited area, by rotation of various forest patches, the foresters do tolerate *podu* cultivation. However, if they use new forest areas for this purpose, even if these are not demarcated for reservation, this may cause problems for the villagers. Of course, to control and restrict the expansion of an area that is already being used for shifting cultivation is difficult in practice. However, if a tribal village were to move into a hitherto uncultivated forest area, the Forest Department would not tolerate this.

Thus, in the research area, the general forest policy with regard to shifting cultivation may be described as a policy of containment. However, there are efforts to actively reduce or stop the practice of shifting cultivation, where it is a long established practice. Such efforts are based on long established general views about shifting cultivation in the context of Indian forest policies, which have consistently occurred in various forest policy documents, as in the following:

"Shifting cultivation is affecting the environment and productivity of land adversely. Alternative avenues of income, suitably harmonised with the right land use practices, should be devised to discourage shifting cultivation. Efforts should be made to contain such cultivation within the area already affected, by propagating improved agricultural practices. Area already damaged by such cultivation should be rehabilitated through social forestry and energy plantations"(Resolution National Forest Policy 1988, Section 4.7; Shifting Cultivation).

Efforts to discourage shifting cultivation by the Forest Department are linked with more general projects and programmes to develop tribal people. Tribal forest dwellers and shifting cultivators such as the Juang and Bhuiya are perceived in terms of poverty, tradition, primitiveness, backwardness and desire for freedom in the forest; all resulting in the unproductive and destructive practice of shifting cultivation. This widespread image of tribal forest dwellers finds its expression in statements such as these:

"The biotic factors especially human interference, direct or indirect, have considerably modified the pristine vegetation [of Keonjhar District; N.O.] and are solely responsible for the present degraded condition of the forests. The Bhuiyans and the Juangs are a people of very primitive instincts. Their chief instinct is hunting and a craving for unfettered freedom. They consider themselves to be the lords of the soil and live in a simple arcadian fashion. Shifting cultivation is an immemorial and traditional custom with these aboriginal tribes which had been followed by them uninterruptedly. The areas of of shifting cultivation may rightly be termed as 'Jhumer's paradise'. The jhuming [shifting cultivation; N.O.] represents truly the aboriginal method of shifting cultivation followed by the Bhuiyans and the Juangs" (ODG 1986:20).

> "(...) the economic condition of most of the people belonging to the Scheduled Castes and the Scheduled Tribes is very poor. They are mostly Juang and Bhuiyans. (...) The Juangs and the Bhuiyans are tradition-bound, shy and secretive in nature. They practice extensively a primitive system of cultivation known as shifting cultivation which is most unproductive and leaves behind a mark of destitution. The method involves cutting and burning of trees and bushes in the hill slopes to prepare patches of land for cultivation. *Rasi* [niger; N.O.] or *til* along with some pulses are cultivated in these plots in the first year. In the second year the same plots are used for the cultivation of paddy. *Mandia* and *Gangoi* are cultivated along with paddy in the borders of the field. In the third or fourth year the land is abandoned and another piece of land is selected for similar cultivation" (ODG 1986:223).

> "Agriculture is the main occupation of the Adivasis of the district, but due to extreme poverty they often take to podu cultivation which is extremely harmful. To stop this harmful practice the Adivasis are now given various agricultural aids and loans. Some minor irrigation projects and digging of tanks and wells have now been undertaken in the tribal areas. Government also makes grants for land improvement (...). Scheduled Castes and the Scheduled Tribes people have been provided with bullocks, seeds, agricultural implements and irrigation facilities like wells and tanks" (ODG 1986:392).

Development programmes have to be looked at, in the context of such general judgements of the situation of the tribal people in Orissa and Keonjhar. In 1974, the Government of India, in association with the Government of Orissa, initiated a project called "Tribal Development Agency" (TDA) to tackle the vast problems of "poverty and sufferings" of these tribal people with a view "to bring about significant changes in their economic condition" (ODG 1986:224).[42] This Agency was inaugurated by Indira Gandhi[43] and aimed at economic development programmes such as:

1) "proper utilisation of land and water, development of agriculture and horticulture, settlement of landless families with lands, prevention of shifting cultivation and introduction of afforestation measures to control soil erosion;
2) introduction of subsidiary occupations like rearing of goats and sheep, pigs poultry, dairy development, beekeeping, sericulture, etc.
3) strengthening of co-operative and marketing infrastructure supplemented by a network of link roads; and
4) undertaking debt relief measures specially to free the tribal people from their existing burden of debts and to safeguard against alienation of tribal lands and their restoration to the original owners" (ODG 1986:224).

The project implemented in Keonjhar District included several schemes:

1) Agriculture, which included the supplying of bullocks, implements, oil seed developments and input assistance
2) Horticulture (backyard plantation, mango in situ plantation and guava orchard)
3) Reclamation of wastelands and land development
4) Irrigation including lift irrigation, MIPs (minor irrigation projects) and dug wells
5) Animal husbandry
6) Afforestation
7) Communication
8) Co-operation
9) Rural industries including sericulture
10) Training and publicity
11) Administration (ODG 1986:225).

[42] 1979 The Tribal Development Agency was converted into another agency called the Integrated Tribal Development Agency (ITDA) for constant follow-up action.

[43] A fact still remembered by the villagers who benefited in some ways from the Development Programme; e.g. they consider that they received land from Indira Gandhi, who represented the Indian government at that time.

If the financial outlay necessary for these schemes is to be taken as an indicator of their importance, agricultural inputs and irrigation, together with reclamation of wasteland and land development were given high priorities within the programme. The TDA in Keonjhar covered three Community Development Blocks, of which Banspal Block was one. Both Kodipasa and Kansa were targeted for inclusion in some of the schemes of this development programme, as already mentioned in chapter 3.2.3. In Kodipasa, wasteland was reclaimed for landless families and agricultural implements were distributed to them. Both the foresters and staff of the TDA told the villagers of Kodipasa "to stop shifting cultivation", "to keep the forest", "to protect the forest", "to stop *toila* chasa because it is destroying the forest" and that "rain will stop if you continue with *toila* chasa". The Juang perceived that the government had made a deal with them, in that they had received both *bila* land and agricultural implements from the government, but that they in turn had to stop *toila* cultivation. Their version of events is that the Forest Department together with the government, seized their village forest; "closing" it to stop the Juang to continue with shifting cultivation.

"Prevention of shifting cultivation" was also aimed at the villagers of Upper Kansa, which resulted in their resettlement in Kodipasa, where they were given *bila* land and agricultural implements. The Forest Department backed the resettlement project as "prevention of shifting cultivation" was part of it. Before being relocated to the foot of the hill range, the villagers of Upper Kansa had intended to move to a more distant forest area. The Forest Department however restricted them from doing this and instructed them to apply for *bila* land in Kodipasa, nearby their old village. The idea was to stop *toila* cultivation in Upper Kansa, by relocating the village to the plain where the Juang could make their living by means of permanent *bila* cultivation. However, according to the Juang from Upper Kansa, it was not possible to subsist from the new *bila* land in Kodipasa, and subsequently they tried to combine *toila* with permanent rice cultivation (*bila*) at the new area in Kodipasa. They were soon stopped by the Forest Department, which argued that the purpose of the resettlement project was to stop *toila* cultivation in both villages. However, the fact that half of the resettled Juang families returned to Upper Kansa after several years and resumed shifting cultivation up in the hills and forest also indicates that the Forest Department, as well as TDA, had been unable to fully implement their policy of putting a stop to shifting cultivation.

Thus, the transition from shifting cultivation to permanent paddy fields in Kodipasa, was supported by the policy of the Forest Department, which tried to stop or reduce *toila* cultivation in that area, by the process of land settlement as well as by general development strategies in the 1970s. It would be too simplistic however to conclude that this local process was determined by forest and development policies alone. In chapter 3 it has been shown that there are also economic incentives for intensifying land use, where possible.

The transition from shifting to permanent paddy cultivation was a lengthy process, marked by the gradual decline of shifting cultivation, as may be deduced from conversations with several villagers. There was no specific point in the past where shifting cultivation had been given up collectively, based either on a decision taken at village level or purely on intervention from the Forest Department and other government agencies.

Village elders remember the time, when Kodipasa consisted mainly of Juang households, with a few Gouda families herding the cattle of the Juang. They recall forest areas, which have subsequently been converted to permanent agricultural land and settlement area. The landscape increasingly altered, as more and more land was taken under permanent cultivation. Forest patches slowly disappeared from the plain, leaving behind only some of the larger trees. This process had started without intervention from the State. It continued and was accentuated by the immigration of new settlers, with the land settlement and distribution in the 1970s.

Hence, several factors other than growing pressure from the Forest Department and the Governmental Development Agency have contributed to the total cessation of shifting cultivation in Kodipasa. There was also growing pressure from those villagers, who had already stopped *toila* cultivation and were interested in using nearby village forest for purposes other than agriculture. Thus opposition to the attempts by the Juang (that had resettled from Upper Kansa to Kodipasa) to clear nearby forest for *toila* cultivation, also came from the villagers of Kodipasa. These villagers feared that they would lose their remaining few local forests, which so far had been pushed back to the slopes of the hills behind their village. More recently, when some poor Juang families from Kodipasa attempted to resume *toila* cultivation, they were asked to stop, not only by the Forest Department but also by other villagers as well. The growing pressure that was being put on the land by the decreasing fallow periods and yields from *guda* land were incentives for poor households to resume their traditional practice of shifting cultivation. A further argument that was put forward by several of the Juang for resuming *toila* cultivation was their wish "to taste *Ruma, Birhi, Kangu, Chotua, Harada* again"; all local varieties grown on swidden plots.

Another factor for giving up shifting cultivation was the declining yield from swidden plots in the remaining forest. With an expanding population and an increase in the number of permanent rice fields, the forest area previously used for *toila* cultivation had decreased, resulting in shorter fallow periods. Furthermore, it proved difficult for single households to practice shifting cultivation individually, as they lacked the necessary labour and cooperation from the other households for the clearing of forest and bushy vegetation, once the majority of the families had stopped *toila* cultivation. The village community no longer supported the practice of shifting cultivation and there was no longer the formal annual distribution of forest patches to households, which had previously received ritual blessings from the village priests.

When asked for the reasons for having given up shifting cultivation, the Juang mainly mention the protection of the forest by the Forest Department, restrictions imposed by the government and the concern of the majority of villagers to conserve the remaining forest.

While giving up shifting cultivation completely was the result of a combination of various endogenous economic and exogenous political factors, the initiative to actively protect the remaining forest of Kodipasa was mainly a local initiative as will be shown later.

5.3.2 "Tolerated Theft"

According to the B.J.P. range officer, the damage that shifting cultivation causes to the forest is less than that caused by the felling of trees for timber and firewood, because shifting cultivation is done in restricted areas, whereas timber and firewood are collected everywhere. An increasing amount of timber and firewood is obtained from *reserved* or *demarcated protected forest* areas, as all other types of forest are already heavily degraded. As long as the demand for timber and firewood exists, it is difficult to control illegal felling and the incentives are great enough to risk confrontation with the law. The demand for these forest products will continue and even increase, as long as substitutes are not widely available and/or more expensive than traditional products.

Every day wood sellers from various villages and forest areas arrive in the district capital of Keonjhar. Not all of them reach the centre of the town, as some of them have already sold their wood on route. Several of them have regular customers and they deliver the wood to their homes while the remainder sell their loads in the streets nearby the market place. The Forest Department, which is located next to the market, could easily confiscate all the wood which is not collected according to the rules and regulations: it is mainly freshly cut wood and

not "naturally fallen firewood". It would be much easier for the forest officers to do this, than to detect illegal felling of trees in remote, large forest areas which are difficult for them to survey.

However, it is well known that the selling of firewood is an essential source of income for the tribals and other poor people who are mainly from Scheduled Castes. It is also a recognised fact that the majority of households in the villages and towns depend upon firewood as a source of fuel and that if a household has sufficient income available, that this firewood will be purchased from wood sellers. Even the forest officers buy their fuel from the wood sellers, who, were the law to be strictly enforced, would not be able to sell the quantities of wood that they do. There is a high demand for whatever the Juang, Munda and other wood sellers carry from the forests.

There are official firewood depots belonging to the Forest Department in Keonjhar town where legally produced firewood can be purchased. It is even cheaper than the wood sold by the tribal and low caste people. However, the wood from these depots has not been cut into smaller pieces, it is not carried to one's home and its quality is said to be less than that of the wood from the illegal sellers. Furthermore, the supply is irregular and it can happen that there is no fuel wood available in the depots.

The restrictions with regard to timber seem to be implemented more seriously by the staff of the Forest Department. Almost all of the men that were selling timber in the two villages complained about difficulties with the foresters. Tales of timber being confiscated by the foresters while it was being transported for sale to other villages or the towns were common. Filing cases against small-scale illegal timber traders seems to be rare. However, confiscation itself is a kind of fine, as it means not only the loss of a day's work but also the income from the sale of that timber. It is suspected that the foresters sell the confiscated timber themselves and keep the money. Confiscated timber should be taken to the wood depots and sold by the Forest Department.

The tribal men have not always been faced with such difficulties, when trying to sell timber. Up until 1984, the Juang and Bhuiya were allowed to sell any timber to a special Bhuiya-Juang Sale Depot, which had been operating in Keonjhar town even before independence. There were no restrictions over either the species of tree, or the amount of timber cut by the Juang and Bhuiya. Timber was then sold from the depot to the customers, who had to pay royalty. The depot was under the control of the Forest Department. In 1984, the depot was closed and the sale of timber was declared illegal. According to a forest officer (Mr. Mahapatra) this decision was based on the principles laid down in the Orissa Forest Conservation Act and Wildlife Act. The Juang in the two villages still remember the depot, as they had sold some of their timber there, although they were unaware of the reason why it had closed. Some other timber was sold directly to customers or to contractors. Today all timber is either sold directly to the customers or to contractors. The difficulty that the men face in trying to sell wood, due to the illegal trade, is reflected in the statements of some of the villagers, who state that they would prefer to earn a regular income from wage labour if there were more and better opportunities to do so.

5.4 Village Forest Politics

> "Corporate organization is found only in villages where commons situations have become commons dilemmas" (Wade 1988b:184).

In literature and debates about Indian people and their use of and rights over forests, there is often an open or hidden assumption of a history which runs as follows: once upon a time for-

ests as common pool resources[44] were sustainably managed as common property. They stopped being so with the growing intrusion and grip of the state, which transformed forests de facto into open access resources, or deprived local people of their forest resources completely. Local existing attempts to protect forests are seen by scientists and social and environmental activists as a "relic from the past" and hopes to revive them are associated with projects to protect forests, by means other than exclusive control of forest resources by the state. There are three assumptions behind this version of the relationship between local communities and forest resources:

1) Common pool resources of forests were managed as common property with rules and regulations.
2) They were managed in a sustainable way: i.e. rules and regulations to control access to and use of forest areas and their resources were designed for the purpose of sustainable management and conservation.
3) Common property regimes collapsed due to state intervention.

Such a story may be true in many cases and has been documented for several of them. However, there are indications of other histories regarding the relationship between the forest, the people and the state. As long as there is no scarcity of natural resources, rules and regulations about the use of such resources are unnecessary. Restricted access, for outsiders, to the local resources of a local community, may be the consequence of a territorially designed space and not because there is a scarcity of natural resources. Finally, there may be other reasons for the collapse of common property regimes than intervention by the state.

If, to what extent, and how, the Juang communities of Keonjhar managed their forest areas under common property regimes in the past is a question that remains unanswered so far. In existing literature there is little data about the management of the forest by the Juang, with the exception of forest areas used for shifting cultivation. Access to, and use of such areas was institutionally organized and regulated.

Information from the villages under study here, however, indicates at least in the recent past, a rather loose handling or control of those forest areas which were not used as swiddens: if outsiders wanted to use village territory for shifting cultivation, they required permission from the villagers. Although the Juang considered forest areas in their village territories as common property of their village, for many forest areas an open access situation seems to have been prevalent. Outsiders, not belonging to the village communities, were not prevented from collecting forest resources and / or grazing cattle and goats in the forest within the territory of a village. There are no indications that there was any restriction upon the quantity or quality (species) of firewood and timber that was collected, or that there existed any ban on the felling of trees (with the exception of certain fruit bearing varieties), or that outsiders were restricted from taking any forest produce (except for game). However, it must be assumed that the number of forest users was smaller in the past and put less pressure on forest resources.

The Juang in the two villages under study state that in the last twenty to thirty years, not only has there has been a growing number of outsiders using their forest areas, but their own demand, especially for fuel wood and timber for commercial purpose has increased. As the villagers of Kodipasa realised that their forest resources were both deteriorating and diminish-

[44] Ostrom and others define common pool resources as characterized by difficulty of exclusion and the generation of finite quantities of resource units or subtractabilty, i.e. "one person's use subtracts from the quantity of resources available to others" (Ostrom 1999:1) These characteristics are phsyical qualities of resource systems and do not yet define whether common pool resources are managed as common property resources, under conditions of open access or any other institutional setting.

ing, they started to close their forest to outsiders and created rules and regulations for community members. I suggest that it is only recently that the forest has in fact become a common pool resource under a common property regime, and that in fact open access without deleterious consequences was common in the past. Thus this common property regime is not a relic from the past, but a recent development, brought about by the increasing pressure on and scarcity of forest resources, based upon recent experience and knowledge that has been gained. [45]

The attempt to solve a "common problem" however is partly based on experience gained from other problems, on existing patterns and forms of social organization and institutions of the village community. How far these traditional social and institutional resources may be helpful in solving new problems, in a changing context will be examined in the following sections. But firstly, the various attempts of the villagers of Kodipasa to take action for active village forest protection will be described.

5.4.1 Village Forest Protection in Kodipasa

Before the beginning of the 1990s, the village forest of Kodipasa was de facto in a state of open access. Its resources came under growing pressure, as neighbouring villages on the plain had started to protect their own small forest areas, i.e. outsiders were denied access to them. These outsiders were then forced to go to the more remote forests, i.e. the forest of Kodipasa and forest areas behind it. The villagers of Kodipasa themselves, although no longer practising shifting cultivation, continued to fell trees in their village forest for timber and fuel wood, both for their own use and for sale outside the village.

The villagers of Kodipasa now realized that the resources of their village forest were dwindling. The main problem for them was that they were losing a valuable nearby source of timber and fuel wood for their own use. It was not only the quantity but also the quality of forest that had changed. High-quality timber for construction purposes, for example was difficult to obtain from the forest, as the trees were too young and of insufficient quality for construction. This was the main incentive for them to actively protect the village forest. A more active forest protection scheme aimed at the exclusion of outsiders and the establishment of rules and regulations for the villagers themselves were necessary. The initiative for imposing restrictions on the access to and use of the village forest, was taken by household heads from the wealthier families. Among them were the then *sarpanch* (a Juang) and two relatively

[45] An attempt to protect the village forest, or at least part of it, is taking place in other villages as well. In Kundhei, a large mixed village of Juang, Munda, Santal and Gouda, the Juang have started, in recent years to protect part of the village forest, mainly consisting of Sal trees for their own use, while still practising a reduced form of shifting cultivation with shorter fallow periods of four to five years in the area next to the protected forest. The protected forest lies close to the hamlet of the original Juang settlement and is closed for any use by the villagers. In previous times it was used for shifting cultivation. Now the forest patch is protected, for the purpose of timber and firewood for the personal use of the Juang and not for any commercial purpose. The Juang can obtain timber from this forest only after getting permission from the village assembly in the *majang*, but they have to pay for it. In order to get straight trees, branches are lopped off and used as firewood. Other firewood has to be collected in the non-protected forest.
Other hamlets in Kundhei do not protect any forest, but they respect the protection of the forest patch by the Juang. The initiative to protect the forest by the Juang was taken without any intervention from the forest department after realising the problem of timber scarcity for the villagers. However, some time after my visit to this village, I met the Sarpanch of Kodipasa Gram Panchayat, a Juang from Kundhei. When asked whether the village forest was still protected, he admitted problems of supervision and sanctions and his comment to the main problem was "We are all thieves!", accompanied by a sympathetic smile for human nature.
The neighbouring village of Kodipasa (Jamudiha) also tries to protect its forest.

Part of the protected village forest in Kodipasa

prosperous Gouda household heads. They wanted to protect the village forest, in order to secure the availability of timber and firewood for household use for the immediate future and were concerned that they had to travel to more and more distant places, in order to cover their personal needs. None of these households were dependent upon selling timber or fuel wood. The decision to keep the forest for the purpose of timber and firewood for local use only and to close it to outsiders was taken in a meeting of all of the villagers from all hamlets and all groups. They all agreed to protect the forest in the meeting, or at least there appears to have been no open opposition. The villagers were all aware of the degrading village forest and that they needed timber and firewood for their own use. However, the opportunity costs for protecting the village forest were higher for the poorer households (they had to travel longer distances to collect firewood and timber for sale) and the benefits less costly for households that needed the forest purely for timber and fuel wood for their own use.

The following rules and regulations were made:

1) No outsiders were allowed to enter the village forest for whatever purpose (grazing, cutting timber, collecting firewood).
2) Villagers were allowed to collect dry firewood only. The felling of trees for the purpose of timber and/or firewood for sale was prohibited. Larger quantities of timber for personal use had to be approved by the villagers in a meeting. Smaller quantities (one or two trees) were free for the villagers. The felling of Sal trees for any purpose was not allowed. Timber for personal use had to be produced from other species of tree.
3) Sanctions involved the payment of fines and in serious cases the confiscation of the axe. If an individual were to fell trees against such rules, he would be fined 50-100 Rs. according to the size of the tree that he had felled. The money would be used for ceremonial purposes of the village.

There was a village forest protection committee formed that consisted of four to five Gouda men, seven to eight Juang men, two to three Santal men and two to three Munda men who were responsible for checking and implementing these rules and regulations.

The control of the village forest was initially based upon a rotation system: a special stick (*badi*) was circulated among the households and each household was responsible for controlling the village forest on the day that the stick came into their possession. At that point, one of the household members was sent to control the forest. However, after a period of two years, this system was abolished. There were various reasons why this system did not work, as will be elaborated below.

At the outset of this method of protecting the forest, all of the hamlets of Kodipasa, including Lower Kansa, had one common village forest. After some time the two hamlets of Masani Sahi (Munda) and Lower Kansa (Juang) received their own portion of this forest which they shared with a hamlet from a neighbouring village, that had applied for participation in the village forest protection activities in Kodipasa: it had become apparent that the whole village forest area was too large to be watched and protected effectively and thus the people of Masani Sahi and Lower Kansa, together with the villagers from a hamlet called Sirispal, started to protect this separate forest patch. This inclusion of outsiders from the neighbouring village was resented by some of the villagers of Kodipasa, because of the way in which it had happened: people from the neighbouring village had approached the Sarpanch of Kodipasa village, to ask permission to participate in the village forest protection scheme. Several villagers maintain that the Sarpanch received bribes, in the form of cash for integrating these neighbours into the scheme. They were annoyed that this decision about the village forest had been taken without a village meeting. However, they felt too weak to initiate a dispute with the Sarpanch. The integration of a nearby village hamlet, which had a long-standing tradition of using the nearby forest resources of Kodipasa, shows that in the past, village forest resources had not been perceived as village common property, in the strictest sense.

Villagers from other hamlets (Kodipasa Sahi, Sologhoro Sahi) were not allowed to fell trees, in the forest protected by the people of Lower Kansa, Masani Sahi and Sirispal and vice versa. But they were allowed to collect dry firewood.

Control of the forest that was protected by the people of Sologhoro Sahi (Munda and Santal) and Kodipasa Sahi (Juang and Gouda), was then delegated to a group of four villagers: two Munda and two Juang were responsible for patrolling the village forest and ensuring that the villagers kept to the rules and regulations. For carrying out these tasks, each village forest guard was supposed to receive 25 *mano* of rice (approximately 16 kg rice) and 25 Rs. per month, plus an additional 5 *khandi* of paddy (100 kg paddy) annually.

This system was also abandoned one year later, due to non-fulfilment of duties by both the guards and the villagers. The guards were accused of not patrolling the forest properly, as they started their patrol in the morning, returned at noon and in the afternoon the forest was left open and unchecked. The original agreement had been to check the village forest between the hours of 9 a.m and 4 p.m. There were also rumours that the guards had helped themselves to wood from the village forest. The forest guards accused the villagers of not compensating them for the work that they had done; several households did not give the agreed amount of paddy to the guards. During this time, it was not only outsiders that took timber and fuel wood from Kodipasa forest; but also the villagers themselves.

This attempt to guard the village forest by using a small number of villagers, who were paid in kind for their services, parallels the local cattle herding system used in Kodipasa: specialised Gouda cattle herders take care of the cattle for a remuneration in kind and cash. This is a well functioning economic institution of the village. However, a similar system for the protection of the village forest did not work. The reasons for this could be that the benefits of

such a scheme for each household are not immediate and reliable. By comparison, the cattle of a household are grazed daily and brought back in the evening, whereas a forest protected on a daily basis, hardly yields anything for the household. Moreover, it is difficult to monitor whether the forest guardians are doing their job well, while the condition of the cattle brought back in the evening may be checked. Thus, the benefit, even on a daily basis, of organised cattle grazing is obvious to every household i.e. their cattle are looked after. If a farmer does not pay the cattle herder his daily allowance of a handful of rice per cattle, then the herder could exclude that particular farmer's cattle from the herd. This has immediate consequences for that household, as they now have to organise the herding of their cattle themselves. Therefore, the costs and benefits are apparent, as are the consequences of non-cooperation. If, however, a household does not pay for the village forest guardians, for whatever reasons, it does not suffer any consequences in the short term. On the contrary, as long as other households are prepared to make up their contribution, every household profits from an amelioration of forest resources. Theoretically, members of a non-paying household could be excluded from regularly using the village forest, but in reality, this would be difficult. The collection of firewood, for example, is a traditional right of all villagers and it would be unthinkable to deny them this.

A further problem was that the village forest protection committee had also not operated properly. At the outset, if anyone was caught cutting firewood or timber in the forest and contravened the rules, a meeting was called, the matter was discussed and the culprit warned against doing this again. Everyone obeyed these rules for a while. However, after a period of time, no more meetings were called and people started to break the rules without fear of retribution. In addition, there were occasions where one villager would openly accuse another of violating the forest rules and regulations and this would result in conflict between the two parties involved, rather than it being resolved at a village level by the village forest protection committee.

Another weak point was the vague formulation of rules and regulations. When discussing these with two villagers who had been guards at that time, they could not agree on the rules, as they had not been fixed in any written document at the time and were therefore open to interpretation. According to one of these guards, the village forest was fully closed to everybody, i.e. even the collection of dry firewood was not allowed. Timber for own use should have been collected outside the protected village forest. He explained, that the imposing of such a rule made it easier to control and monitor the forest, than if the regulations allowed for the collection of dry wood or the felling of certain trees for construction purpose. His companion however stated that the villagers were allowed to collect dry fuel wood, although outsiders were not.

After the failure of appointing special forest guards, the "stick rotation system" was reintroduced by the villagers. Two men from neighbouring households were to patrol the forest from 9 a.m till 4 p.m. In the evening they were to give the stick to one of the next two households responsible for patrolling. Thus the stick would rotate among the households, with each household taking their turn every three weeks.

During my stay, this system again did not work as it should have. The stick had stopped being circulated in June 1998, when agricultural activities increased. By November it had still not started being passed from house to house, "due to work", as some villagers explained. I was told that the same had happened the previous year. According to several of the villagers, the pressure on forest resources of timber and fuel wood decreases during periods when there is increased agricultural activity and increases during periods when there is little or no work to be done on the farms. The breakdown of the stick system, during periods of agricultural activity is generally considered to be insignificant, as fewer people have the time to go to the

forest to fell trees, or to sell fuel wood or timber at the market. However, given the fact that some households in the village itself primarily depend upon the sale of timber and fuel wood for income and that agricultural activities are of little or no importance to them, then this may be a false conclusion. There is a lesser supply of timber and fuel wood during times of intensive agricultural activities and this obviously results in an increase in the price of this wood, making wood selling a financially viable means of obtaining an income at times of intensive agricultural activities. And not only the villagers are tempted to infringe on the rules made by themselves, but outsiders equally realise gaps in the control system and start to enter the protected forest again.

In a village meeting, held in December 1998, the problem of the protection of the village forest was again discussed. Of the men that were seated around the central fireplace in the *majang*, the majority of them were elderly, middle-aged or young married men. The meeting in the *majang*, a traditional Juang institution, was not restricted to Juang men, as Gouda men also participated and Munda and Santal men could have taken part but did not. Not present at the meeting were the Munda and Santal men from Sologhoro Sahi, nor was every household from Kodipasa Sahi represented. Those who were interested attended the meeting, but it was by no means mandatory for people to attend.

Several Juang women had positioned themselves within earshot outside the *majang*, so that they could listen to the men, who were having a lively but orderly discussion. Relatively few men were talking; the majority were just listening. First of all, the current situation was described. Over the last few weeks, an increasing number of trees had been felled in the forest area. Despite the fact that the villagers had previously stated that they would protect and patrol the forest, to prevent this happening, several of the villagers, as well as outsiders had been helping themselves without permission. Two consequences of this state of affairs were mentioned. Those villagers that had restricted themselves from felling trees in the village forest felt disadvantaged; protecting the forest was perceived as a loss for them. One of these villagers jokingly proposed that in order to compensate for their loss, those people that had obeyed the rules should now be allowed to fell the same quantity of trees as the others. This would mean that the village forest would at least be destroyed in an egalitarian way. The same Juang man suggested that the village forest should be divided among the households. As in previous times with *toila chasa* (shifting cultivation) each family should get a part of forest and would then be responsible for protecting it. However, it was obvious that such a system would not be practicable. The cost of protecting a forest patch for each family would be too high.

Another consequence was the disappearing village forest and it was stated that nobody would gain any benefit from such a loss in the near future.

It was then decided that the village forest had to be protected again. A proposal by one of the Juang, to give the village forest to the foresters for protection, was rejected with the argument, that the rangers were not able to control the whole forest area and that the villagers should do it themselves. A Gouda man suggested re-introducing the system of employing two forest guardians, to be paid annually. Each household would pay 16 *mano* paddy (8 kg) per year, plus a daily handful of rice, in the same way that the herders were remunerated. A young Juang man replied that the people in Kodipasa did not have enough to eat, and therefore how could they afford to pay two guardians? Keeping the rotation system with the stick would be less costly for everybody.

A proposal made by another Juang to establish a committee with a president and a secretary to receive complaints from villagers and to control the patrolling system was not discussed further, although he had addressed a sensitive issue with it. The problem that could arise, with villagers using a system of rotation, is one of mutual protection. It would be a case of each turning a blind eye in favour of the other. There were even rumours, that the patrollers

themselves were guilty of felling trees, while "watching the forest". Villagers that broke the rules themselves would not be in a position to take action against other villagers. Having some kind of independent committee would allow the villagers to address complaints to this committee about villagers and patrollers alike.

Another proposal, made by the same Juang man, was to have a meeting, every Monday morning, to discuss issues of the village forest. This proposal was noted, but no clear decision was taken with regard to it. It turned out later that no regular meetings were held. It was finally decided to resume the stick rotation system, in order to protect the village forest. Thus, a decision was taken with consequences for people who were not at the meeting. There were no discussions about actions to be taken against those who did not act accordingly.

The women had left the meeting before it came to an end. They considered the problem of forest protection to be something to be handled by the male villagers, as they were not part of the patrols.

However, the stick rotation system proved to be a partial failure again and there were several reasons for this. The stick did not move properly from household to household. Those responsible for patrolling the village forest did not always do their job. Instead of watching the forest they were busy with agricultural activities, were trying to earn some money from selling timber or firewood or were just enjoying a day of drinking *handia* or *mahul* with other villagers. There was no system for controlling whether the stick was moving properly and whether those who received it were doing their duty. This is well documented by observing what happened to the stick over the period of the following months. In the village meeting, held in December 1998, it was decided to resume the stick rotation system. It was decided that during the first month, the village forest should be controlled daily, by a group of four men from neighbouring households; two watching the lower portion of it, two the upper. After this initial period, the number should be reduced to two men. It was assumed that outsiders would realize within the first month, that the village forest was seriously protected again and the villagers would equally be reminded of the rules and regulations. There were to be two sticks. One was to start at the upper end of the village, where mainly Gouda resided, and at the same time another stick should start its rotation in the lower side of the village, inhabited by the Juang. However, with the exception of one Gouda man, the other three men that were supposed to patrol the next day, were not in the meeting. The Gouda man also announced, that he would not go to the village forest with his neighbour due to some conflict between the two households. It was left up to this man to solve the problem, i.e. to find somebody else to patrol the forest with him.

During the weeks that followed this meeting we tried to observe what was going on with the system of patrolling the village forest. It appeared to work for some time. In January, several villagers from Naranpur had been seen in the village forest. They had been informed, that the forest was protected and watched as a village forest. The patrol then sent them away to the other side of the hill. Once outsiders realized that they were felling trees in a forest protected by the villagers, they accepted the claim of the local people. However, the protection has to be visible and control is necessary, in order to prevent outsiders from taking the opportunity of getting forest resources from the nearest forest possible.

Three weeks after the meeting there was another meeting in the *majang* and among other issues that were debated, there was a short discussion about the village forest. It turned out that the stick had stopped rotating a few days previously, as one of the Juang men, who was drunk, had burnt it. A new stick had to be prepared and put into rotation. During the meeting it was decided who was going to be the next villager to patrol the forest. The Juang responsible refused to patrol with his neighbour, because this one would always start his "tour" in Sologhoro Sahi by drinking *handia* and would be drunk by the time that they were due to patrol

the forest. This problem was solved by the decision that another neighbour should accompany him.

Some days later the stick came to the household of our host. The eldest son was due to go to the forest on this particular day. His neighbour, who should have accompanied him, however, was visiting a sister in a neighbouring village. Thus, our host's son went alone. In the evening there was a short discussion about the rotating system in front of our house. A Juang man complained that some of those villagers that were to receive the stick would not patrol the forest, but would instead drink *handia* or *mahul* or spend their day involved in other activities. Furthermore, he suggested that punishment should be more serious; anybody violating the rules and being caught in the village forest should lose his axe immediately.

The stick continued to move; albeit with interruptions due to misunderstandings as to whose turn it was, till the middle of May. At this point, this system stopped for a long period. The stick remained in a Juang household and nobody really bothered to keep it going. The villagers were busy with farm work or with wood selling or with both.

The stick rotation system parallels the cattle herding system of Upper Kansa, where cattle are herded in a system of rotation. The difference between the two is that with the cattle grazing rotation system, the herders, if it is their turn to take care of the village cattle, are at the same time looking after their own. They are therefore performing a role that would have been necessary anyway. By comparison, looking after the forest for one day is a day "lost" in the sense that nothing else can be done on that day and it is additional work, without an immediate return. This makes it a job that is not worth doing well, if at all.

A further weakness of the village forest protection system is that sanctions are not implemented. Throughout February the stick was still moving. However, one morning at the beginning of March, we met a young Gouda man, who was using some bullocks to pull some fresh poles that he had obtained from the village forest. He explained that these poles were to be used for firewood for his household. On the afternoon of the same day, we met Juang women from Lower Kansa who were collecting firewood; partly dry, partly cut. They explained that some of it would be sold, while the remainder was for their own use. A little later on, we met another group of Juang women from Kodipasa, who were felling trees in the village forest. It had now become obvious to us, that people from various groups were blatantly breaking the rules. The stick was still rotating, but had lost its meaning. The system of patrolling had become ineffective. The more frequently the rules were broken without being sanctioned, the less villagers felt bound to honour them, with the result that the protection system failed.

There was not one incidence of anybody that had broken the rules being penalised. However, various groups accused each other of violating the rules. Several Juang households were accused by the Gouda of cutting firewood and timber for sale from the inner area of the village forest, while the Juang accused the Gouda of felling too many Sal trees for construction purposes. The poorer Juang households whose income was derived solely from the sale of fuel wood and timber, accused other Juang (who cultivated rice), of felling trees in order to construct frames for the paddy straw. The poorer Juang demanded to get the same amount of timber from the village forest for sale. Juang women that collected dry firewood from the forest for household use, accused the Gouda men of taking large amounts of fuel wood from the forest; sometimes felling trees for this purpose and transporting them by bullock cart to their homes.

The Munda equally accused the Juang of breaking the rules. They perceived the Juang as being "bazaar people", largely dependent upon the sale of wood. According to them, the Juang even cut valuable timber that was supposed to be used for construction purposes, for firewood. Thus, they held them mainly responsible for the degraded village forest. They accused the Juang (although not openly), of generally failing to protect the village forest, due to

their high dependence upon the sale of wood, which they considered to be a consequence of their negligence of farm work. Some of the Munda and Santal people from Sologhoro Sahi discussed among themselves the possibilities of having their own village forest patch. The people of Sologhoro Sahi had lost interest in protecting a village forest that was harvested by others; mainly identified as the Juang. When asked why they were not addressing the problem of forest protection directly to the Juang, they referred to them as the original inhabitants of this area, thereby granting them a status of the traditional owners of the land. They accepted them as being the original dwellers and "landlords" (one of the Munda even used the metaphor of *"raja"* (the king*)* to describe the Juang) of the area and they refrained from openly criticising them.

Laziness is perceived by some of the villagers as being the main reason for the destruction of the village forest: "The axe is destroying the forest and lazy people are destroying the village", was the comment made by one of the Juang, while walking through what remained of the village forest. A Gouda man made the following remark: "We are tired to talk about the forest, it's no use. The Juang sell wood, when there is no work on the farm and the Juang sell wood when there is work on the farm – they sell wood the whole year."

However, poverty is also perceived to be a reason for breaking the rules of village forest protection. Thus, a wealthy Gouda man explained not only the hardship encountered by the poorer Juang householders, but also the difficulty in punishing people that are short of food, on a daily basis. "How is it possible to fine widows, landless families and elderly villagers, for obtaining their means of livelihood from the nearby forest?" he asked. There was definitively some understanding and sympathy for those villagers whose income from wood selling was essential.

5.5 The political system and institutions of the Juang

> "Prior experience with other forms of local organization greatly enhances the repertoire of rules and strategies known by local participants as potentially useful to achieve various forms of regulation. Further, appropriators are more likely to agree upon rules whose operation they understand from prior experience, than upon rules that are introduced by external actors and are new to their experience" (Ostrom 1999:7).

In the discussion about the management of common property resources (CPR), on the one hand a reason for the breakdown of once well functioning CPR systems is seen in institutional and organizational changes, due to changes in other socio-economic, political and/or ideological domains. On the other hand, hopes and attempts to promote self-organization on a local level, with regard to natural resource management, try to link new institutional arrangements to established institutions or to revitalise degraded local institutions. These issues raise several questions: to what extent do traditional institutions exist that are still working? Is it possible to carry out successful forest protection with them? How have traditional institutions changed? Are there any new institutions, do they work and are they appropriate for successful forest protection?

The study of the general political system and institutions of the Juang helps to explore the viability of traditional Juang community institutions for the management of forest as common property. To regulate and control access to and use of natural resources is a matter of politics and the management of protected village forest as common property is embedded in a local political system. Questions of social and political leadership, political participation, mechanisms of conflict resolution, establishment of rules and sanctions in the case of non-accomplishment, the relevant socio-political units and arenas within and beyond Juang villages – all these are issues also to be dealt with in the context of an analysis of common property regimes. Thus in this chapter, I will give an outline of the traditional political system of

the Juang, mainly based upon the ethnographic research carried out by McDougal in the early 1960s.[46] With regards to terminology I will use the term "traditional", not with a view based on any fixed point of reference in the past, but as a term of reference to a political and social system that was still in existence when McDougal carried out his research, although it was probably then already in the process of changing. The political system of the Juang was embedded in and influenced by the larger political system of the pre-colonial and pre-independent Hindu kingdom of Keonhar. After independence, it was subsumed under the political structure of the state of Orissa. Viewed from a historical perspective, there are continuities and discontinuities to be discerned: there is a growing integration of the Juang into local and national politics beyond the village level, probably a loss of local autonomy on village level, an increasing articulation of local political bodies and institutions within supra-local structures especially in the area of development and local government. On a symbolic level there is less attachment to the anonymous and abstract concept of the State, which is no longer embodied in the person of a Hindu *raja*.

The contemporary situation of the various traditional political institutions, as well as new forms of political manifestations experienced during my field research, will be presented following the analysis of the traditional system. With the help of some of my experiences and my own data, both old and new lines of conflict will be illustrated and discussed, in the context of the attempt to solve the problem of protecting forest as common property. Issues not mentioned by McDougal and others will add to the picture of the contemporary political situation of the Juang in a changed context and environment.

Before staying for several months in two Juang villages, I had read McDougal's ethnographic account of the social and political system of the Juang and I was trying to verify, what remained 50 years later, what had changed and what had not been mentioned by him. Some observations about the social and political village life were familiar, in the sense that I was able to recognize what McDougal had described. Others were unfamiliar and unexpected. Differences to McDougal's account were more prominent in Kodipasa than in Upper Kansa. Old political institutions seemed here to be in the process of losing importance paralleled by shifts in traditional structures of local leadership and power relations.

5.5.1 Juang village politics: the *majang* and its political actors

In the pre-independent political system of the Juang, the village was the most important political unit within the wider unit of the loosely organised tribe. Referring to the traditional context of the Juang society, McDougal characterizes the Juang village as follows:

> "The village is the largest corporate group in Juang society. It is the only land-owning unit, controlling access to all resources. It is a unit of economic production, distribution and consumption, and economically self-sufficient in relation to other Juang communities. It is a ritual congregation and the largest Juang ritual unit. In relation both to the external administration and to other Juang villages, it is politically autonomous" (McDougal 1963:62).

[46] Although his approach is that of a structural-functionalist with the concomitant weakness of describing a smoothly functioning social and political system with some lack of historical depth and analysis of conflicts not to be solved by social mechanisms of the system itself, his monography on the Juang of Keonjahr is still today the most elucidating and encompassing portrayal of Juang society. His findings have only partially been supplemented by other ethnographic research and literature, while the majority of other authors have either reproduced in the same or sligthly different way what is to be found in his monography. However, some studies focused on aspects neglected by McDougal, these being ecological and economic aspects of shifting cultivation (Bose 1967) and ethno-botanical research by Patnaik et al.

Within the village community it is the complex institution of the *majang*, which regulates village affairs. It is not only the organizational structure with regard to all communal affairs, the men's house is also a prominent building within the village. It is the central meeting place, where important rituals and social activities take place.

5.5.1.1 Family heads and ritual elders

Political authority and responsibility in the village are vested in the village council of family heads, i.e. the married men as heads of independent households. McDougal classified these men broadly, in various categories according to their status, age, influence and office held. The first distinction he makes is between "secular family heads" and "ritual elders", the former having no formal ritual posts.

The secular family heads are subdivided into the two groups of "young married men" and "elders"; the age of about 40 years being a rough dividing line. Elders tend "to monopolize political activities, exercising the greatest amount of influence in the community" (1962:193). Elders also tend to monopolize liquor provided from village funds and distributed in formal situations in the *majang*. They restrain from participation in village dances, whereas young married men may still join the groups of mainly unmarried boys and young men during visits by girls and women from other villages. However, in everyday interpersonal relations, young men do not show any prominent signs of deference towards elder men and elder men have no formal authority to enforce their will upon younger men. Within the group of elder family heads, there are several informal leaders whose leadership is based on their personal abilities:

> "A leader is a man who exercises influence over his fellows; his opinions are heard and respected, and they influence the actions of others. He is a man of forceful personality, who possesses initiative, experience, sound judgement, and a gift of oratory. He is often relatively wealthy, but there are men of modest means who are important leaders, and rich men whose opinion count for little in the community. Leaders are recognized by members of their own and other communities as 'important men' (*mukhia lukoki*). At the village level, this acknowledgement of their political position is not formalized - there are no special titles or symbols of status" (McDougal 1963:370).

The category of ritual elders relates to the older men of the village that hold named ritual posts. Among these, the two offices of *bwita* and *ordhano* are the most prominent ones; they perform all the central rituals within the community. There is a division of ritual labour between them: the *bwita* is the keeper of a basket with ritual offerings, the *ordhano* is the keeper of a sacred axe (*pathakhanda*) with which sacrifices are killed. Other names used instead of *bwita* are *nagam* or *dehuri*: according to N. Patnaik their use varies according to region: "The sacerdotal head of the village called *Nagam* in Keonjhar and *Buita* or *Dehuri* in Dhenkanal usually officiates in all communal rituals of the village" (1989a:54).

Patnaik's description of the *ordhano* differs from that of McDougal. Patnaik uses the term *pradhan* for this office holder and according to him the *pradhan* is the formal and secular headman of the village:

> "His office was created by the feudatory rulers of Keonjhar and Dhenkanal. Some of the important activities in which he takes leadership are the distribution of land for axe cultivation among villagers and adjudication of intra and inter village disputes. Formerly he used to collect revenue from the villagers and send it to the *Sardar* for payment to the State treasury. He used to make arrangements by way of providing accomodation and provisions for the officers while on tour in his area. (...) The *Pradhan* used to receive some remuneration from the feudatory rulers for his work in connection with collection of revenue and contributions for functions to be observed at the state headquarters. As village headman he also enjoys some privileges" (Patnaik 1986:60).

He emphasizes the "vital role" that the *pradhan* plays in the village:

> "All significant matters are brought to his notice and his opinion and participation is desired in all important matters. He is the formal spokesman of the village. Any individual can file his complaints before him against any other individual in the village and the villagers are expected to obey his commands. Whenever necessary the *Pradhan* can call the village council meetings. He may significantly influence the opinion of the council by his statement although the final decision is taken by the council and not by the headman" (ibid.).

This prominent role ascribed to the office of the *pradhan* (respectively *ordhano)* does not appear in McDougal's analysis of the political system of the Juang. However, it appears that by looking for village representatives, the former state authorities created a kind of formal headmanship which was then transmitted by the Juang to one of their traditional ritual elders; the *ordhano*. But within the village community he was still dependent upon the willingness of other villagers to ascribe him authority and influence. The analysis of the political structure among the Juang by McDougal, convincingly denies any fixed position of headmanship or influential power to command. The term *pradhan* is an Oriya term meaning 'foremost' or 'head'; however, there is no such clearly defined leadership position among the Juang. In the observations of Elwin Verrier it is indicated that the *pradhan* "sometimes combines in his person the function also of Dhuri or Bhuitar" (1948:36), i.e. the function of *pradhan* could also be fulfilled by the *bwita*.

Regarding the authority of the two offices of *nagam* and *pradhan*, Rout says:

> "The ritual head (*Nagam*) of the village has important roles to play in the village rituals but he has little voice in the village council. The secular officer (*Padhan*) is responsible for certain external affairs of the village, and has a definite role to play in the village rituals. But he does not necessarily exercise supreme power in the internal affairs of the village. (...) it is evident that the offices of the leaders confer responsibility, but no real authority" (1969:86).

Other elders may assist during rituals, but their activities are not definitely prescribed and they lack any symbols of office (McDougal 1962:194). According to McDougal, the names of these posts may vary from village to village, but titles that are widely used are *nayko*, *odhikari* (according to Bose 1967:146 the *odhikari* is the assistant of *buita* during religious functions) and *dangua*. The *dangua:*

> "… acts as an assistant of *Nagam*. He collects the offerings from the villagers. He also announces the decision of the village leaders in respect of ritualistic performances to all the villagers in front of the dormitory house. (...) He acts as a messenger to the *Nagam* and the *Pradhan*. He takes the news around the village, summons the village people for any occasion or informs them of any important decision of the village council" (N. Patnaik 1986:61).

The religious offices of *bwita* and *ordhano* are always kept by male members of the local descent group and ideally this office should be given to its most senior male member. However, it is possible that the post of a deceased *bwita* can be designated to the current *bwita's* wife, for a period of two to three years, until a successor is found. In such a case the woman is considered a ritual elder "subject to all contingent rights and obligations" (McDougal 1962:199). Probably due to the need for performing sacrificial killings with the sacred axe, the post of *ordhano* is always occupied by a male. In the event of his death his duties may be performed by the *bwita* himself, thus he would be assuming both offices at once.

The ritual power of elders does not necessarily give them authority over secular village affairs which are rather the domain of the secular family heads, over the age of 40. These heads tend to have a dwindling influence towards old age; old men somehow draw back from very active debating, they would rather observe what is going on and remain in the background, making comments rather than trying to be influential.

> "It is recognized that as men grow old they diminish in physical and mental vigor, necessary qualities for leadership, with the result that they tend to exert less influence in the political sphere" (McDougal 1962:208).

My observations, to a large extent, mirror those made almost 40 years previously, by McDougal with regard to the description of the various categories of men in these two villages, their roles, functions and behaviour. In both villages there is a *majang*, the men's house which was described and analysed in detail by McDougal as the one prominent feature of the social and political life of the Juang. In both villages, men meet there to discuss everyday village affairs as well as exceptional events. Juang men invested with political and/or ritual offices are all married and they are all independent household heads. They all belong to the founder clan of the villages. Both unmarried and young married men adopt a passive role, in comparison to elder independent family heads, although they may participate in any public discussion. Their verbal reservation in public discussion however does not necessarily coincide with consent to the dominant discourse. The fact that there are few extended families among the Juang of the two villages, may be interpreted as the result of the fact that both married men and independent family heads strive for autonomy and higher social status. Older men tend to remain in the background, as silent listeners. Women do not participate in *majang* meetings, although they may follow discussions from outside.

In Upper Kansa, the two religious offices of the *bwita* and *ordhano* were occupied by one elderly Juang male. He was assisted by his younger brother, who was perceived to be his potential successor. The situation of the religious leaders in Kodipasa was somewhat exceptional, in so far as the prominent figure with regards to ritual affairs was an elderly Juang woman. She had been invested with the office of the *bwita* after the death of her husband; the previous priest of the village. He had been a member of the village founder clan (*barcha bok*), from which religious leaders are recruited. Without her, most religious rituals and ceremonies were not practicable. She was highly appreciated as a priest, while in everyday life she took on the role of an old widow, who was supported by her family and had no specific authority. It appears that this particular woman did not actively seek to become the *bwita*; in fact she was pressured into taking this role by the villagers, after the death of her husband. A *bwita* transmits messages and offerings to the spiritual and divine world and as such is the link between the needs and demands of both men and gods. A *bwita* carries the burden of being made partly responsible for successful agriculture and the general well-being of the villagers. The year before my stay in the village had been a bad year, with little rain and crop failure and there seemed to be hidden reproaches toward the *bwita,* which were rejected by her during the preparation for an annual agricultural ritual.

The female *bwita* of Kodipasa had two male assistants; one being the *ordhano* (also called *podhano*[47]*)* in the village, the other who was locally called the *odhikar*. Both were over 50 years old and belonged to the founder clan of the village. The *ordhano* previously held the office of a *nayko* (assistant). For many years he was also a *panchayat* ward member – thus, for several years he had held a political office created by the State. Economically the *ordhano* of Kodipasa belonged to the lower strata of the village community as the majority of the Juang.

This was in contrast to the *odhikari*, who was the richest Juang in the village. His economic success however was not connected to his office as a priestly assistant; there are few opportunities for transforming "ritual capital" into economic assets. However, it is likely that his economic status had helped him to secure this office. His wealth was at least mentioned as having been one of the reasons for electing him as a priest. Other reasons for his election were his experience and knowledge of village affairs and his connections to the world outside of the village, due to his political past, when he was *sarpanch* for several years. He assisted the

[47] Acording to Bose (1967:146) Pudhan = village leader

bwita in the rituals and was declared successor to the *bwita*. His father had also been a *bwita* (*dehuri*).

During everyday life, the social status of these village priests is not markedly different from that of other Juang men. The same holds true for the female *bwita* (and for the wives of the male priests.) The fact that Juang men with priestly offices are not sacrosanct persons in everyday life, will be demonstrated in the light of a conflict analysed below.

There are also new political offices to be found in Kodipasa. In this village there are *Panchayat* ward members and a *Sarpanch* ex officio. This previous *Sarpanch* is an interesting political figure. He is actually the *odhikari* described above, assisting the female *bwita* and he is her future successor. He is the richest Juang man in the village, with regard to land and cattle. As the son of a *Sarpanch* and after having been a *Sarpanch* himself for several years, he has the experience and know-how to deal with external authorities and he remains the informal contact person for outsiders; a role not claimed by any other villager. He is respected and distrusted at the same time by the other Juang, who are not only unable to ignore his wealth and power, but are also unable to sanction efficiently his misconduct towards the villagers as will be shown in chapter 5.5.2.

Two of the Juang men from Kodipasa are ward members of the *grama panchayat,* elected by the villagers. They both belong to *barcha bok*. Both are literate, which is a prerequisite for eligibility to this office. Thus, old and new offices in Kodipasa are held by married Juang men belonging to the founder clan.

With regard to the *majang* there are some obvious differences between the two villages. The *majang* in Kodipasa is no longer the daily meeting place of the male villagers. A lot of the time it is empty, with no fire burning in it. It is mainly used for rituals and ceremonies and for announced meetings. The *majang* has retained its ritual significance, but its social and political meaning has been reduced. It is no longer the prominent centre of village life, as many Juang houses, as well as houses and hamlets of other villagers, are situated some distance from the *majang*. It has also partially lost its function as a dormitory for young and unmarried men. This may be partly due to a housing scheme that was implemented by an external development agency, in order to provide additional houses for the Juang population. However, the loss of this function can not only be explained by the greater availability of houses: traditional Juang houses can be constructed of local materials relatively easily and therefore it would be too simplistic to explain the reason for spatial segregation of unmarried boys and men in the *majang* as being down to the the scarcity of living space in traditional Juang houses. I thus interpret the demise of the *majang* as a sleeping place as being related to the phenomenon of a broader social change within the Juang village community; a change towards even more fragmentation and increasing centrifugal forces than those that already exist in the traditional setting.

Entering the village of Upper Kansa one easily gets the impression of being in one of the villages described by McDougal, some 40 years ago. Here, the *majang* is still the central place for the male villagers that meet there everyday. It stands in the centre of the small houses clustered around it and its fire is always burning.

5.5.1.2 The subordinates: women and young men

There are two other categories of people within the village community that form part of the political structure and are in a comparatively subordinate position. These are women and unmarried girls and unmarried boys and married young men that do not have the status of independent household head.

Raia, Kusiana, Bajana and Nidi (from left to right): Juang family heads in Upper Kansa

The *majang* is clearly a male dominated place and institutional structure, although the exclusion of women and girls is not absolute; under certain circumstances and in a clearly regulated manner, women and girls are admitted access to the *majang*. (I myself as a foreign woman was never denied access to the men's house and in fact the *majang* was the normal place to be welcomed when visiting Juang villages). Young unmarried girls have the duty of keeping the *majang* clean and before any ritual event they apply fresh cow dung to the floor and the walls of the men's house, if necessary mixed with mud to repair any damage to the walls. For communal feasts they prepare cups and platters made from Sal leaves.

Although women do not participate in the meetings held by the men, it is quite easy for them to know what is going on in the *majang*. There is no strict secrecy surrounding these meetings and as the *majang* house has an open structure, everything is visible and discussions going on may be followed from outside.

Among the women, the wives of the *bwita* and *ordhano* do have some special status and some ritual functions. The widow of the *bwita* may even become a *bwita* herself, and as such she has considerable ritualistic power and can enjoy free access to the men's house. The wives of both the *bwita* and *ordhano* also play a ritual role during religious ceremonies; the wives of the elders that are to perform the rituals lead the way from their homes to the *majang*. They bless the route by sprinkling turmeric water, from the doorsteps of their homes to the central pillar of the *majang* (McDougal 1962:202).

The *majang* is not only the men's house; it is also the dormitory for boys from about the age of ten upwards and for unmarried young men. They gather together there in the evening and sleep near the big fireplace in the centre of the main hall. However, the boys eat in their family homes and are subject to the formal authority of the family head (McDougal 1962:185f). Traditionally, these boys have clearly defined duties connected with the *majang*, as well as with certain rituals. They are obliged to provide the large logs for the fire in the *ma-*

jang; this fire is to be kept alight at all times. They sweep the *majang* and they may be asked to collect thatching grass and to periodically fix the roof. They assist during rituals, they fetch water and firewood for the preparation of food during communal feasts. They play the *changu* (drums); they sing and dance during various social and ritual occasions. It is their prerogative to eat, together with the ritual elders, the head of a sacrificed animal (fowl or goat), from which secular family heads are excluded. Thus, boys and unmarried young men may always be present in the *majang*, although their role during debates and discussions is a passive one; they listen and observe but do not interfere.

McDougal describes the position of young married men that are not independent family heads as somewhat ambiguous:

> "They lack the rights and obligations of either unmarried boys or family heads, while possessing no special prerogatives or responsibilites of their own. For the performance of certain tasks – e.g., chopping wood, fetching water, butchering animals, and cooking for communal feasts or for visitors – they are aligned with the unmarried boys, as well as some of the younger family heads. They often work together with the boys, assisting them in the construction of drums and in preparing the larger varieties of straw rope bundles. They frequently take part in the dances of the unmarried boys and girls" (McDougal 1962:192).

These men live either under the authority of their father or their elder brother as family head. According to McDougal, the fact that these men are denied the full social status of an independent family head is an important factor for them in becoming independent socio-economic household heads. This results in a low percentage of joint or extended households.

Although restricted with regard to active participation in village politics, which is dominated by married family heads, there is some scope for both women and young men to pursue their interests. One strategy is for them to ignore decisions that have been made by the village council, if they do not find them convincing The fact that women, as well as young men, do break the rules that have been made by the village council, regarding protection of the village forest, indicates that such resolutions are not automatically obeyed.

The public role of women and unmarried girls in both villages is characterised by discretion, with regard to the *majang* as a male meeting place and forum. Among themselves, whether they are with their family, other household members or their neighbours, they have their own means, places and times to communicate and to discuss personal and village affairs. The Juang women spend considerable time either in a group with other Juang women of a similar age, or of varying ages. They talk together while working in the fields and when, in groups, they collect firewood from the forest and carry it to the town. Young unmarried girls visit other Juang villages to dance there and they welcome boys from other Juang villages, who come to dance and sing with them.

The Juang women are neither invisible in village life nor tacit observers of the Juang men. They make comments about the men and their behaviour. However, the women acknowledge the public role of men and accept decisions that concern the usual village affairs. However, during my stay there were two events that highlighted the fact that although the *majang* is perceived as a male dominated institution, the women also have a degree of informal influence within the community. These two illustrative cases raise doubts about the effectiveness and strength of the *majang* as a political institution and authority with binding force when interfering with the interests of women.

Before leaving the field I wanted to give a gift to the two village communities and I proposed to buy them a big pot, to be used in village rituals, when large quantities of food needed to be prepared. I also suggested, that such a pot could be kept in the *majang* and borrowed by any family in the village, who had to cook food for guests on occasions of marriages or death. The Juang men agreed. However, the women of Kodipasa instructed me not to give the pot to the men to be kept in the *majang*. They argued that it would be stolen from there; some irre-

sponsible men could sell it and use the money to buy *mahul*. It would also be difficult to get the pot for 'private' purposes (e.g. marriage, death). It was obvious that they distrusted their men in this matter. They instead suggested that the pot should be kept in the house of a respected Juang woman, whose husband was mentally sick and did not drink alcohol. The sons of this family were still young and therefore did not drink either. It would probably have been difficult for the women to remove the pot from the *majang*; had I given it to the men. They managed to keep the pot out of purely male control and to solve the problem in a way which gave them more free play for their own interests. Due to mental ill health, the husband of the household where the pot was to be stored, was not in a dominant position; neither were his sons, due to their young age. It would be far easier for any of the women to deal with this female custodian of the pot, than with any of the men in the *majang*.[48]

The fact that the women are capable of refusing to accept decisions taken by the men was illustrated by the following incident that took place during our field research. When we wanted to measure swidden plots in Upper Kansa, we asked the permission of the men in the *majang* and they agreed. However, when we took steps to measure the first field, the women working there refused and the men conceded. It was not possible for us to find out the reason why the women refused us permission. [49] However, this example showed us that it was not possible to by-pass the women. We had addressed the men in the *majang*, assuming that they, as family and household heads, could either give or refuse their consent. It is quite likely, that had we asked the women first, they would have directed us to discuss the matter with the men.

Even if women are to a considerable extent excluded from the meeting place of the *majang* and young males are partially excluded from discussions, debates and decision making that takes place among male family heads and elders, they have several options available to them, for either cooperating with the men or by-passing and obstructing their decisions. The fact that they are excluded from village politics, in a direct way, is not tantamount to saying that they are subordinated to male decisions. Policy decisions and rules relating to the local village forest are followed; as long as they fit the current circumstances that the women are experiencing. They are by-passed if necessary; particularly if individual women perceive that they are being cheated by others who are not following the rules and regulations that apply to the forest.

[48] The gift of the pot evoked other facets of village life. My gift had no common and shared value for the various groups in the village: it was estimated by the Juang and considered as useful. However, the Gouda immediately declared the gift as useless for them: because the Juang would cook pork meat in this pot, it would therefore become impure and it would be impossible for the Gouda to use it for any private or ceremonial purposes. A woman from a richer Santal household explained that my gift was useless for her, as she already had large pots in her own household. In addition, several of the Munda suspected that the Juang would withold the pot from the Munda people and would not allow them to use it for their own private purposes. This episode highlighted the various centrifugal forces that were present in this village community, by factors of gender, economic and social status as well as cultural (religious) identity. It also illustrates my own naivety (in thinking that I could give a gift to everybody) hinted at my unconsciously cherished idea of a harmonious village community, at least partly refuted by reality).

[49] Bose (1967:6) mentions the following perception of the Juang which might indicate a reason for resistance to the measurement of swiddens: "The Juangs of Keonjhar believe that if a person, specially one belonging to the Government, measures a plot for mapping, then a clear ownership of the plot will be feasable. In fact, in areas of shifting cultivation, land is not owned permanently by any individual, but is treated as communal property. When a plot of land is, however, alloted to him for a season, he enjoys the full fruits of his labour."
Hunt (2000:263) also mentions "vigorous local resistance to standard measuring techniques" in agricultural studies, e.g. among the Iban.

The issue with the pot in Upper Kansa was somewhat different: I did not want to carry the pot myself to the village, as it was too heavy. I therefore asked the men of Upper Kansa to send two Juang men to carry the pot. They agreed, but had difficulty convincing two men to do it. The elderly men tried to persuade two of the young unmarried boys to get the pot, but they refused, claiming that they did not have the time to do this. It was only when I threatened to give this pot to the villagers of Kodipasa as well that two men were prepared to carry the pot to their village, albeit after suggesting that I give them not only the pot but some additional money for *mahul* as remuneration for carrying my gift. This incident illustrates the lack of authority of elderly men over the younger men.

During my stay, I frequently heard complaints about the laxity of the male youth, with regard to their duties in and for the *majang*. These complaints mainly came from the ritual elders during the performance of rituals. However, it is difficult to interpret such statements as a clear indication of not only the demise of rituals within the Juang culture, but also the involvement of boys and young men connected to them. McDougal repeatedly mentions not only the difficulty of individuals in Juang society exerting their authority but also the lack of authority that the elderly men have over younger men and even boys. But there were obvious signs of the *majang* being given less importance. The missing or broken *changus* (drums) in the *majang* of Kodipasa, were symbolic of the fact that the *majang* was losing its significance as a central place of cultural, ritual and social Juang life.

5.5.1.3 The role of non-Juang villagers

The *majang* is partially open to other male villagers that do not belong to the Juang. The type and degree of participation depends on various factors. Certain ritual village affairs are left to the Juang, with the view that they are the original inhabitants of the place and as such are the specialists, not only in dealing with local gods and spirits, but also in performing sacrifices for the general well-being of the village; for the people and animals as well as the crops. This principle does not interfere with the separate religious places and rituals of the Santal, Munda and Gouda. The Santal and Munda have their own sacred forests where they perform their rituals. The Gouda do not have any prominent sacred space in the village; they perform their *pujas* in their homes. However, they do contribute milk and *ghee* to certain rituals performed by the Juang priests and are in this way involved in the Juang religious ceremonies.

During our stay in the village, there was one exceptional ritual performed by the Juang priest, where male villagers from all groups participated. A goat was sacrificed, in order to drive away roaming elephants that had menaced the village for some time. After the sacrifice, there was a meal of rice and goat meat. The ritual united all of the male villagers together as everybody was suffering, from elephants entering the village. However, it was clear that this ritual had to be performed by the Juang priests. Juang priests are recognized by the non-Juang, but no special preferences are given to them in every-day village life; neither by the Juang nor the non-Juang.

Meetings in the *majang* to discuss village affairs are open to all male villagers. They may attend or not, they can join in discussions and give their opinions and suggestions in the same way as the Juang men. In the same way as the Juang men, both elderly and married men may be more involved in discussions and are more influential in the decision-making process. However, there are no formal leaders among the Santal, Munda and Gouda. Possibly, due to their longer involvement in Juang village life, over a period of three to four generations, several of the more elderly and prosperous Gouda men seem to be well established in village meetings. The Santal and Munda are less present in the *majang*; they are somehow more reticent to participate actively in the institution of the *majang*. However, they know what is going

on in the village and they join meetings in the *majang*, if they think that something of concern to them is going to be discussed there.

Thus, while the *majang* is predominantly a Juang institution and on certain occasions, exclusively their domain, it functions as a forum for village politics that is open to all male villagers, regardless of whether they are Juang or not. From that point of view, apart from the problem that women are excluded from the *majang,* it may be considered a valuable institution for dealing with problems that relate to the whole village; as is the case with the forest.

5.5.2 Village affairs and conflict resolution

The village affairs regulated by the meetings of family heads in the traditional context, as described by McDougal, are mainly rituals and social events. Regular annual ritual events that have to be planned and organized, are mostly connected to the agricultural cycle. As the ritual calendar does not follow any specific date, the day of the performance of a specific ritual has to be decided in advance. This is done by the family heads who discuss the various conditions for the performance of the ritual. It may be necessary to coordinate the ritual with other events. It is possible that there is a death either in the village itself, or in a relative's village, which makes it necessary for the agricultural ritual to be postponed. This can also occur if a matrimonial event has to take precedence. When the ritual eventually takes place, the necessary items and sacrifices have to be obtained and instructions have to be given to the boys and girls that are to assist. There is a great deal of routine in the performance of these annual rituals and the villagers know the various steps and stages of such an event. There is a clear division of labour between the *bwita*, *ordhano* and other ritual elders and the duties of unmarried girls and boys are equally clear. There may be irregular ritual events which are not a fixed part of the annual ritual calendar, but which are performed according to the demands of specific circumstances; for example an unusual destruction of crops by animals, the sickness of cattle, a drought.

Another domain of village affairs are social events such as deaths or marriages within the village, which do not just involve the members of the individual households and families concerned, but also require cooperation from the rest of the villagers. Marriages and deaths of people from other villages also require adequate behaviour from the villagers. Thus, village affairs not only concern intra-village affairs, but also affairs related to other villages.

The village council also has judicial functions. It is responsible for ensuring that the rules and norms are adhered to and for dealing with incorrect behaviour and conflicts. Homicide, adultery, theft, witchcraft and flagrant disrespect for the recognized authorities and symbols of the community, are considered crimes to be dealt with by the village council. Quarrels between members of the village which involve assault and the uttering of curses, require public reconciliation. In cases where members of other communities are involved in crimes and conflicts, this becomes a matter either between the two villages or all the villages of the *pirh*. Cases of incestuous relationships cannot be settled within the village, they have to be dealt with at the *pirh* level (McDougal 1962:377). Sanctions may be subdivided into legal sanctions that have been formalised and are implemented by the village council, and more informal and diffuse sanctions that are mainly implemented by the village community as a whole. Without going into detail, the rough structure of sanctioning and conflict resolution includes the following elements (McDougal 1962:377ff):

1) A formal accusation must be made before formal judicial action is taken. There must be a high degree of certainty that the accused is guilty. The accused may volunteer to take an oath of innocence. False accusations may result in supernatural sanctions for the plaintiff and thus an accusation is not carelessly made.

2) The accused is considered ritually impure and risks permanent ostracization by the villagers unless he confesses his guilt and pays compensation. Ostracization refers to the amenities of organised social life, i.e. the person may be excluded from grazing stock with the communal herd, from taking water from the water supplies of the village and from participating in any village affairs.
3) If the accused not only admits his guilt and is willing to pay the required compensation, but also shows his willingness to respect the norms and rules of the community, the social order is reaffirmed. He is reinstated into the community by means of a ritual that involves the drinking of liquor.
4) If he denies any guilt he may be forced to take an oath to swear his innocence; by this oath he renders himself to death by supernatural powers if he does not tell the truth, i.e. he has to fear being killed by a tiger if he commits perjury. He is considered innocent if he takes an oath. If threatened with taking an oath he admits his guilt, he is reinstated after due warning and payment of compensation.
5) If he refuses to take the oath and still denies his culpability, he has to undergo an ordeal until he confesses. The ordeal consists of physically painful treatment and exposure to public ridicule. After such an enforced confession he has to pay compensation.

According to McDougal the amount of compensation is not scaled according to different offences; compensation must be given to the judicial body in form of a goat, rice and money for liquor to provide a feast consumed by the village council.

Whereas the village council sanctions individual behaviour in a formal way, there are diffuse social sanctions by villagers towards members who are charged with inappropriate behaviour. These sanctions include ridicule, malicious gossiping, rumours and diffuse accusations of witchcraft. Latent conflicts between individual members of the community are thus handled in a rather indirect and hidden way. Opponents try to influence the opinion of their social environment about the bad behaviour of their adversaries to get support by spreading rumours and maybe even diffuse accusations of witchcraft. However, there seem to be counter-mechanisms to reduce the danger of escalating individual conflicts into conflicts affecting the community as a whole: Juang society may be characterised as a rather individualistic society. Households in the traditional context, are small and in many respects rather autonomous units. Clans and larger lineage groups are of no central importance and next to the household comes the village community as a whole, as the most important reference group. People are not really interested in interfering in matters that do not affect them directly. Latent conflicts seem to be diffused and thus alleviated. McDougal mentions several ways in which this is done. Serious accusations of witchcraft are very rare and there is rarely a consensus about who is practicing witchcraft in the community. Personal misfortunes and calamities may be explained or interpreted as having been caused by sorcery, however in most cases it is ascribed to some supernatural malevolent spirits. If the traditional diviner finds out that sorcery is the cause of some misfortune, he "does not communicate the name of the sorcerer, but attempts to exorcise the spirits which the latter has sent to attack his victim with magical techniques and contingent offerings, or performs counter-magic to neutralize that employed by the sorcerer, as the case may be" (McDougal 1962:397). Malicious gossips may be taken note of, i.e. people listen to gossip, but they do not feel urged to take action and it may be forgotten after a short time. McDougal even mentions a dispute among the Juang, which finally resulted in the punishment of an outsider (a non-Juang visitor), who had nothing to do with the conflict but was selected to be the scapegoat in order to restore harmony among the villagers. He was driven out of the village and the conflict thus settled (McDougal 1962:401).

Such hidden conflicts may vanish in the course of time, or they may escalate into open conflicts mainly during group drinking. Open aggression mainly erupts in situations where the consumption of alcohol prepares the ground for uncontrolled behaviour and it is the most direct form of opposing somebody in the community. In such a situation, physical violence may occur; in extreme cases leading to homicide. In situations of imminent or actual physical violence, other villagers try to intervene and to separate the adversaries who may later be sanctioned by the village council, for their violence towards each other. According to McDougal (1962:399) situations of group drinking that result in displays of open aggression are a periodic outlet for accumulated aggression:

> "On these occasions (group drinking) the great majority of middle-aged and old men become intoxicated, and when in this state they invariably begin to quarrel, often about something quite trivial, but as the altercation continues, other incidents are introduced. Repressed feelings of oppression are suddenly released. These may be specific or general, and they may be directed at the object of aggression or displaced on a convenient substitute, in either case often an individual who has not fulfilled his social obligations or met social expectations. Grievances within the community are brought to the surface and aired. "

During our field research the handling of ritual affairs, connected mainly to the annual ceremonial calendar, was still a prominent domain of village elders and family heads as described by McDougal. In Upper Kansa, necessary rituals connected with shifting cultivation were still performed, while these rituals had been abandoned in Kodipasa. Other rituals were performed in both villages. However, rituals were somewhat more public in Upper Kansa than in Kodipasa, in the sense that the small population of Upper Kansa was more in touch with what was happening in and around the *majang*, whereas in Kodipasa rituals were mainly the affair of the village priests and other villagers did not pay much attention to them and their religious performances – a fact that the priests sometimes complained of.

The same may be said of other ceremonial occasions, such as burials and marriages in Kodiopasa. Such events are mainly affairs of the families and kin of those concerned. Neighbours are involved to a lesser extent. However, decisions concerning the performance of the death rituals are taken in the *majang*, as it has to be fitted in with the general ritual calendar and one death ritual has to be performed by the village priests and a close family member of the deceased, in the front of the *majang*. This *puja* takes place rather unnoticed by many of the others villagers. In Upper Kansa due to its small size, close kinship relations and neighbourhood, all villagers are involved in such events, although to varying degrees.

Most conflicts between individuals were not handled on a village level. No serious crimes, such as homicide, theft or accusations of witchcraft (which according to McDougal were dealt with on a village level) happened during my stay in the villages. But there were visible and audible conflicts between husbands and wives, mothers and sons, neighbours and villagers. These were conflicts over money, behaviour, food and reputations. There were verbal attacks, accusations, insults and threats and men were sometimes physically violent towards women. Alcohol was part of quarrels. However, in many cases there was no meeting of the family heads to discuss these conflicts. They were left for the individuals concerned to resolve; although comments were made by outsiders. Even close kin did not necessarily interfere in a conflict between husband and wife, or mother and son. In one case, a man filed a case with the police, against his brother, who had slaughtered a goat, during a quarrel with their mother. The conflict was not handled at the *majang*, but was taken to the district police; although it was unclear as to whether the police were going to take this matter seriously. Thus, formal conflict resolution mechanisms and proceedings are not a prominent characteristic of Juang village life.

McDougal does not explicitly mention the control of natural resources as being a village affair, dealt with jointly by family heads; except in the case of the distribution of swiddens.

There is no indication for a traditionally institutionalised forest resource management; except for shifting cultivation. But in Kodipasa and in some other Juang villages, forest resources and their protection have in the meantime become a village affair, discussed during meetings in the *majang*. Decisions have been taken, rules have been designed, sanctions have been decided and control systems have been outlined. I have shown that forest protection partly fails, due to the difficulties of implementing rules and regulations, of sanctioning wrongdoers and resolving conflicts effectively. However, the male villagers of Kodipasa have decided to use the *majang* as a forum for discussing the forest problems and looking for solutions. Without any external support or advise they have started to tackle the problem – which shows that there is not only an awareness among the villagers of the problem of the degrading forest but also a willingness to solve it.

But what has been described in a general pattern of conflict resolution mechanisms by McDougal can be discerned with the issue of forest protection as well: the conflict between the various villagers, about village forest resources does not manifest itself openly. It is diluted, there are rumours and mostly hidden or general accusations: the men blame the women and vice versa, the rich blame the poor, the Juang blame the Gouda and the Gouda blame the Juang etc. On one hand conflicts over the forest are turned into private conflicts between individuals and withdrawn from the public domain. On the other hand, it may be that a conflict between individuals, which is not necessarily connected to the forest, may have negative consequences for the protection system. So far, no villagers have been called to account for offences against the rules and regulations. One reason for this could be that the cost for publicly resolving such a conflict is deemed to be rather high. In addition, an offence against the forest rules is not perceived to be that serious.

It appears that the traditional political system, with regard to village affairs, is strong as long as there is broad consensus and voluntary fulfilment of duties and rules. However, the lack of a strong institutional body, with the authority and power to enforce rules, allows considerable free reign for individuals to by-pass rules, without fear of serious reactions and consequences. Gossip and rumours, as well as mutual accusations, are an indication that there are problems, but they do not go any way to solving them and they do not always fulfil the function of being "informal sanctions" as sketched by McDougal. One reason for the inefficiency of various forms of informal "sanctions" may be the fact that contemporary Juang society is composed of rather autonomous small social and economic units, mainly struggling for themselves, with few general forms of mutual help and cooperation.[50] Thus non-cooperation, with regard to village forest protection, is difficult to sanction by non-cooperation in other domains.

The analysis of a conflict, that took place when we were in the village, shows some of these elements of sanctioning, but also illustrates the risks of a rather ineffective problem solving mechanism. At the same time, this conflict demonstrates the limited authority of the ritual leaders in the Juang community.

The richest Juang in the village of Kodipasa, the *Sarpanch* ex officio, who was at the same time the assistant of the *bwita*, had taken a loan with interest from the village community. The money was provided from a fund that the villagers had raised to pay for a village festival. Not all of the money had been spent and the remainder had been given to the richest Juang household, whose head had applied for the credit and who was supposed to be able to repay the

[50] I gained an impression, during my entire stay among the Juang, that their society was a rather 'individualistic' one, composed of small and independent families and households, characterized by a large degree of social autonomy and only loosely tied to other families and households. However, these households and families were not all equal; neither with regard to their economical assets nor their political power.

loan with interest. However, one year later, when the festival had to be planned and financed again, the money (5000 Rs. including interest) had not yet been paid back. In a meeting in the *majang*, the debtor was publicly reproached by one of the Gouda. The accused reacted angrily, stating that he would pay back the loan, but that he would decide when he would do this, and that the villagers could not force him to do so. Various households then refused to contribute to the collection for the next festival, so long as the money from the previous year was still due, although they were eager to perform their annual festival. A small letter was handed over to the debtor, with a demand for payment. This he ignored. There was gossiping about his behaviour, which was deemed unfair, but there was no open opposition or conflict.

The conflict between this man and the villagers manifested itself in a different context. On the occasion of a public ritual, where he as *odhikari* acted as the assistant of the *bwita*, he scolded several of the Juang men, for arriving late at the ritual place. He reproached them for not taking the ritual seriously enough, which was to be performed to protect the village from roaming elephant herds. They felt offended and reacted by publicly reproaching him for embezzling the money that the villagers had previously contributed towards the performance of the *pus puni* ritual. He denied these accusations and instead asked that the villagers contribute some money again so that the necessary ingredients for cooking the meat for the sacrifice, which would be distributed among the men, could be bought. His demand was refused and after a loud altercation between him and several of the Juang men, he finally left, telling the men to perform the ritual without him. In his absence he was publicly ridiculed by a middle-aged Juang man who took the bottle of *mahul* (liquor) provided for the ritual and drank it in one go. He then refilled the bottle with water from the nearby rivulet, closed it again with some leaves and put it back with the other items that had been prepared for the ritual. At the same time he claimed to be able to inflict heavy stomachache upon the *odhikari* that would ultimately end in his death. Nobody opposed his behaviour and they were all amused to imagine the priest returning to perform the ritual and to drink water instead of *mahul*. By interfering with the priest's ritual drink and consuming it in such a profane manner, this Juang man demonstrated the limited authority of the village priest, who is dealt with in a rather pragmatic way and who cannot claim immunity.

After some time there were half-hearted attempts by several of the men to bring the *odhikari* back. As he refused to return, it was decided to perform the ritual without him, as he was only an assistant to the *bwita*. However, the female *bwita* had also left with the *odhikari*, as he had advised her to do so. As the ritual could not be performed without her, serious attempts were made to bring her back and finally she came and the ritual took place. In the meantime, the bottle filled with water had been refilled with *mahul*, by the same man that had emptied it, so that the ritual could be performed properly.

However, the main conflict between the *odhikari* and the villagers had not been resolved and despite the villagers displaying their disapproval of him, he did not pay back the loan. The villagers knew that they had no effective means to force him to do so. He was rich and independent enough to afford a bad reputation and he just sat out the problem. There was no higher instance to be called to solve the problem. The villagers finally performed the annual festival much later than usual and with less money, due to the fact that some households refused to pay their contribution. This incident added to the already damaged reputation of this man, but he did not care. It is not easy to ostracise a rich villager: to refuse cooperation with somebody who does not need it, is not an efficient sanction. And not every villager cares about having the reputation of being a good man.

Interestingly, this conflict was handled in a very individualistic way by the villagers – the recently married son of the debtor was not involved in the conflict that the villagers had with his father. There were no indications of identifying the whole family with the family head.

5.5.3 Decision making

On a daily basis, men meet more or less regularly in the *majang*; mainly in the morning and in the late afternoon or evening. However, such meetings are informal and according to the mood of the men; each man is free to sit and chat or alternatively to engage in his own daily affairs. These daily meetings keep the villagers informed about what is going on, both in and outside the village and they are the foundation for later decision-making if necessary. Thus, before a decision is made, the matter is discussed and views are exchanged for several days. Provided that consensus has been achieved during previous meetings, the decision may then finally be made quickly, without further discussion. If an immediate, or very important decision, which requires more deliberation is necessary, one or more additional sessions may be held and importance is given to the presence of all the family heads. But as writes McDougal (1962:374):

> "The informal and casual character of the proceedings cannot be over-emphasized. There is no discussion leader, no person who determines who is to speak first and who next. As soon as one man has finished, any other may speak. Leaders and men who make constructive comments are allowed to speak withouth hindrance, but other persons are frequently interrupted, especially if they have acquired a reputation for indulging in irrelevant discourse. The more heated the discussion becomes, the less order or decorum exists, and the greater the number of interruptions. It may degenerate to a point where several persons are shouting simultaneously, each in an attempt to make himself heard. "

However, there is a tendency for leaders to dominate the discussion and to influence final decisions:

> "The leaders do most of the talking, and make the first speeches, offering concrete suggestions and outlining particular courses of action. The various facets of the issue are usually elucidated and alternative solutions formulated by the leaders before others express their opinions. The later speeches are usually repetitions or elaborations of what the leaders have already said. In effect, what occurs in most cases is that the leaders reach an agreement among themselves which is then ratified by the majority" (1962:373).

The discussion continues, as long as the leaders do not reach an agreement. The solution may be an alternative that emerges during discussion or a compromise. However, the decision must be a majority one:

> "...there must be agreement by the majority before it can be implemented. Once a resolution regarding collective action or community policy has been passed, all the family heads must abide by it, and are subject to the coercive sanctions exercised by the council" (ibid.).

The decision making process may also result in a deadlock. The matter may then be dropped, without any action taken, or it may be discussed again in subsequent meetings. Temporary factionalism and in rare instances, a split in the community, may result if no agreement on a crucial matter can be reached (McDougal 1962:374). Such complex matters may be about whether, when and where to shift the village site. However, most village affairs that have to be addressed are of a routine, recurring and regular nature and as such, are decided without major or unsolvable conflicts.

What McDougal describes, is still valid, to a considerable extent, forty years later. Routine village affairs are mostly connected to rituals or ceremonies and are handled in an informal manner. They are discussed not only in the *majang* and during formal meetings, but also by families, among neighbours, on the street and while working. In this way topics that are to be dealt with in the more formal meetings in the *majang* are prepared, opinions are made and decisions suggested. After public discussion decisions in the *majang* may be made or may not. However, what McDougal documents as binding resolutions to be followed by the family heads, raises some doubts as to the effectiveness of the political institution of the *majang*, especially when dealing with village affairs that are out of the ordinary. Decisions may be

taken, rules and regulations elaborated, even sanctions may be designed. However, the questions arise as to just how binding these decisions are and who is going to implement the sanctions? It may well be that the male villagers find solutions and agreements and that they are in unison as to how to tackle a specific problem, but not everybody will carry these resolutions through, although they will not openly oppose them. The men that remain silent during the meetings as well as those men and women that are absent from them may try to avoid the decisions that have been taken by the village council. Considering the weak authority of fathers over their sons, elder brothers over their younger brothers and the elderly over the young in general, the implementation of decisions and rules made in the *majang* is not self-evident. Neither is it self-evident that the women follow what has been decided by their men at the meetings. The problem not tackled by McDougal is the gap between what people say they will do and what they actually do; between the local model of politics and the practice of local politics. Villagers are able to explain how things should be done and they explain them as if they are done in this way. They explain for example, that a man who beats his wife will be called to the *majang*, where a meeting will be held and he will have to pay a fine. While being in the field, I observed that there were several conflicts between husbands and wives, mothers and sons, sons-in-law and mothers-in-law, but none of them were discussed in the *majang*.

When analysing local village forest politics these issues come up quite clearly. The villagers explained to me the rules and sanctions with regard to their village forest, which had been decided in the *majang*. However, when asked who and how many people have been punished for breaking these rules, it turned out that so far nobody had.

The weakness of the forest protection system established by the villagers is partly due to the inefficiency of implementation, control and the sanctioning of rules and regulations that are decided at village meetings, as documented above. All of the villagers are aware of the problem of forest degradation and everybody agrees that measures need to be taken to protect the village forest. However, as has been said before, the forest protection system was initiated and promoted by several household heads whose opportunity costs for village forest protection are less than for the majority of the other households. Sanctions "exercised by the council" do not take place and the committee of villagers that was established at the beginning of the forest protection system does not function.

The fact that the village forest protection system does not work could be explained by reasons other than political ones: villagers do not perceive that the problem of forest degradation is serious enough to pay the costs that are necessary for its protection. However, this is in contrast to their continued efforts, over the past few years, to protect their forest by different means and monitoring systems. They do not give up; forest degradation is a common issue in the village and the problem emerges again and again.

The fact that those who break the rules are not punished, may be partially explained by a type of moral economy that exists within the village: several of the households are so dependent upon wood selling as a means of income, that they would go hungry if they did not sell wood. However, if this were to be the main reason, villagers would make every effort to adapt the rules and the sanctions to the economic heterogeneity of the households. At the very least, there would be discussions to decide who would be punished and who would not. However, this does not happen.

Thus I consider the main problem to be linked to two characteristics of local Juang politics: on one hand, the weak structures of authority and power of the *majang* and the various types of leaders in the village community and on the other, the policy of hidden conflicts. Decisions taken in the *majang* lack a strong binding force and only in combination with the willingness of individuals to obey such decisions are they followed. The fact that breaking the rules that relate to the village forest is not considered a serious offence of course contributes to the

loose handling of these rules. Other infringements that are taken more seriously, for example, are incestuous relationships: when such a case happened in Kodipasa, the villagers reacted immediately to restore the moral order. Routine decision making with regard to ritual affairs also does not pose problems, these are unquestioned necessities for keeping and maintaining the general well-being of the village and its inhabitants.

The strategy of diluting conflicts rather than settling them is disadvantageous in the long run, particularly with the type of problems that are linked to the management of forest resources. As long as personal conflicts between two individuals are kept at a low level, because the community either does not interfere at all or only does so in a rather indirect way, this strategy may reduce the danger of affecting the whole community. But if problems that concern the whole community are diluted in a similar way, they nevertheless do not stop affecting the whole community.

5.5.4 The Juang and the state

The Juang were loosely integrated in the pre-independence political structure of the Hindu *rajas* governing the kingdom of Keonjhar. It seems that they enjoyed considerable economic, political and cultural autonomy within their territory of hills and forests, an area that had been hardly opened up. On certain ritual occasions they made their reference to the *raja*, whom they acknowledged to be their king. Their status of subjects was reiterated in a rather symbolic way. They paid tax and performed some services for the king and his officials. Occasionally they had to reaffirm their recognition of the *raja* as the supreme ruler of the state and to maintain loyalty towards him. However, in their everyday life they managed their affairs independently and mainly at an individual village level. There were few administrative links to the state government; both the *sardar* and *podhano* fulfilled intermediary functions between the village communities and state officials.

A document of agreement, which dates from the beginning of the 20th century, between the *podhano* of a Juang village from Jharkhand Juang Pirh and the Raja Sri King Gopinath Narayan Bhanja Deo of Keonjhar together with the then British Superintendent J.H. Price (1919-1928) indicates the type of relationship that existed between the Juang and the state. Parts of the *kabuliyat* (written agreement) are quoted below[51]:

> "We, Sri Paia Podhan, village Samagirhi, Jharkhand Juang Pirh, District Kendujhar, promise and write that we will follow this agreement:
> 1. I, the Podhan from village Samagirhi, agree to collect 13 pahiri and 10 *khandi mung*, which per Cuttack measurement is equal to 15 seer and 17.5 *mano* of cupper cup as well as *birhi*, in Cuttack measurement 30 seers and 15 copper pahire. This tax has been fixed and this tax I will collect and deposit in the king´s treasury in the month of *magho* at once.
> 2. Every year I will deposit one goat of one year and one goat of six month in the king's government.
> 3. We will deposit the following items at the following time at the following place: 120 brooms at the palace at the beginning of the year.
> 4. If I will not deposit the above mentioned tax, the goats and the other things in scheduled time and place or only part of it, the price of paddy, mung, birhi will be fixed at the time of harvest and the price of the one year old goat will be 2 Rs. and the price of a six month old goat will be 1 Rp. and this amount will be collected by auctioning my property.
> 5. From this village I will collect from each household (...) *pouti* of any crops. From these crops 1 *pouti* will be deposited at Nizigarh Sri Baladevo Jiu´s storehouse and the remaining part I will keep for my expenditures.

[51] This document is with the Collectorate Keonjhar District. It is written in Oriya and was translated by my research assistant.

6. I, with all the adult male members of my village, will do the following work without wage (*beti*):

a) beti for the king:
1) Every year in the month of *phaguna* we will be present with material for the construction of 3 roofs and one boundary roof.
2) We will supply *kuli* to carry food for the king, the king's family members, his managers, assistant managers, assistant officers and king´s lawyers or other state´s laywers any time they will come to or leave from Juangpirh. We will supply fuel wood, straw and leaves free of charge.
3) Whenever the king or the above mentioned persons go out of this district, we will supply one kuli to carry their luggage. This kuli will only get food.

b) beti for Nizigarh Sri Baladevo Jiu:
1) We all the Juang, *nayak, podhan* with all people will supply 2 ropes for the chariot[52].
2) During the time of construction of the chariot, the Juang will provide one hut for the people constructing the chariots and one house for the blacksmith. The Juang will supply small ropes to pull up the wooden poles for the construction of the chariot. For this reason we will get food.

c) all other types of beti:
1) We will carry thatching grass, *mai* (?), small sticks and other material for the construction of the roof of one storehouse.
2) If any officer of the British Government will visit Juang Pirh we will be responsible to provide *kuli*. We will supply foodstuff which is available in our village. The kuli we will provide will get food and the foodstuff which we will supply will be given at the current rate. We will supply firewood, straw and leaves free of charge to the above mentioned officers. According to necessity we will provide a hut for them.
3) We will not supply anything to outsiders at a higher than the local price. The crops we will harvest we may sell at our will. Every year, we, all the *nayaks* and *podhanos* of the whole Jharkhand Pirh will deposit the amount of 7 Rs. total plus the amount of 9 *pouti* mung per area giving 1 Rs. (...) in the storehouse of *Mahaprabu* (Beladevo Jeu).
4) Every year in the month of *Jaitra* we, the *nayaks* with the *podhanos* of Juang Pirh will be present at the king´s palace in front of the king, the queen and the British saheb. We will give some gifts to the king´s manager, the *denan* and we will get our salary.
5) If there is any uprising or revolt against the king, we will not join. If we will see any sign of such an action we will inform the king´s government.
6) We will obey any order of the king.
7) Without the permission of the king we will not keep any person with gun, bombs and pistol. If we will keep such weapons we will inform the king´s government. We will be punished if we make some fault.
8) If we want to settle outside the Juang Pirh, but within this district we have to take permission from the king´s government. Without permission from him we are not allowed to live in other areas.
9) The deposits fixed in this *kabulyat* will be valid for 7 years (...)
10) Whatever offense happens in our villages we will report to the police station or to the *kacheri*. If some mischievious person or some warranted person comes to our village we will not give him any shelter. As soon as possible we will inform at *kacheri* or police station. If any time some culprit comes to our village we will help to catch him. Any type of unusual death we will report to the police station.
11) We will not go beyond this agreement. If we go beyond we will be dismissed from our office of *podhano* or *sardar*. We will accept any type of punishment. The power of any dismissed *podhano* will go back to the king who has full power to install another one.
12) We will be bound to obey any forest rules and regulations in our Pirh.
13) Without permission of the State we will not allow other community persons to live in our village."

Village taxes, free labour and services (*beti*) for the king, the state and his officers, many in connection with religious ceremonies (*beti* for god *Nizigarh Sri Baladevo Jiu*), recognition of the state's superiority and confirmation of loyalty towards the state as well as recognition of territorial restrictions are the current aspects of this agreement. The emphasis on loyalty de-

[52] This refers to the great religious Rath Jatra festival, where the three deities Jagannath, Subhadra and Baladev are placed in a wooden chariot pulled by hundreds of devotees.

manded from the Juang towards the king and state has to be seen against the background of two tribal uprisings in Keonjhar in the 19th century, illustrating the potential political power the tribal population could have under certain circumstances.

5.5.4.1 Colonial era

To analyse the relationship between tribal subjects and the colonial state, during the 150 years of British colonial politics in Keonjhar District, would go beyond the scope of this study. However, the description of a tribal uprising in the 19th century sheds some light on the political dynamics between the various players in this princely state under British rule. The Juang participated in this uprising, but they were less prominent players than the Bhuiya.

The Uprising of 1867-68

The first tribal uprising under the leadership of Bhuiya *sardars* took place in 1867-68 and was caused by a disputed succession to the throne in the state of Keonjhar. Raja Gadadhar Bhanja, the native ruler of Keonjhar from 1839-1861 died in 1861 without a male heir. After his death, there were two rival claimants for the *gadi* (royal throne). The first was Dhanurjay, an illegitimate son by a concubine of the late Gadadhar Banja and the second was a grandson of the Raja of Mayurbanjh, who claimed that his grandson Brindaban had been adopted by Gadadhar Banja. The claim of Dhanurjay to the thrown was strongly opposed by the widow of the late Gadadhar Banja, *Rani* Pattamahadevi, who had no children. She supported the succession of Brindaban and among her followers, were not only her relatives, but also a large part of the tribal communities, including the Bhuiya and the Juang. The conflict over the succession of the appropriate Raja was further complicated by the fact, that the British authorities also had a say in matters of installation of successors in the tributary *mahals* of Orissa. They decided in favour of Dhanurjay and tried to persuade *Rani* Pattamahadevi to accept him as the legitimate successor. However, when in 1867, preparations were made to install Dhanurjay with all the necessary ceremonies, she carried out secret communications with the hill tribes, mainly the Bhuiya and the Juang. She threatened to leave the palace and Keonjhar in case of the arrival and installation of the young Raja Dhanurjay. The British authorities "expected that the Bhuyas and the Juangs would raise a disturbance if the *Rani* quitted the family house" (Cobden-Ramsay 1982:217). In comparison to the Juang, the Bhuiya's role was crucial, insofar as they were more numerous and as "they claimed a right to install each Keonjhar Raja separately after their own fashion" (ibid.). Their refusal to accept the new Raja was a serious threat to the peace and order within the state and the British authorities tried to calm down the situation:

> "The Superintendent, therefore, directed his Assistant to proceed to Keonjhar and deliver a letter to the *Rani*, and also to explain to the hill chiefs that the Raja was desirous that the *Rani* should reside in the family house, but that, if she was determined to leave, she would be properly escorted wherever she pleased to go. On arriving at Keonjhar, the Assistant found that the agents of the *Rani* were fomenting dissaffection" (Cobden-Ramsay 1982:218).

Constant rumours of opposition and of "large gatherings of hill-men in the neighbouring jungles" continued and it was said that deputations passed between them and the *Rani* (Cobden-Ramsay 1982:218). In December 1867, Superintendent Ravenshaw himself had a meeting with a joint party made up of the Bhuiya and the Juang. The Juang "promised to accept Dhanurjay; but the general result of the meeting was that no definite answer could be given, until both tribes had held a conference together." (ibid.) Despite the opposition of the *Rani*, Superintendent Ravenshaw formally installed Dhanurjay "amidst the abuse of the *Rani* and her women. The ceremony was attended by many of the Juangs, but not by the Bhuiyas, and was

quite distinct from that of recognition by the hill tribes" (Cobden-Ramsay 1982:219). Following the installation Ravenshaw toured the hills to try to convince the people to recognise Dhanurjay:

> "After a short while, he found that there was a manifest change in public opinion. (...) An important section of the community, known as the Saonts, also declared for Dhanurjay; the Juangs followed, and ultimately the bulk of the Keonjhar tribes gave in their adhesion. The Bhuyas, however, held out stoutly, being strongly under the influence of Ratna Naik, who was said to have been bound by an oath not to desert the cause of the *Rani*. This opposition was of some importance, in consequence of the prescriptive right claimed by the Bhuyas, of confirming the installation of a new Raja by certain peculiar ceremonies. It was, however, expected that if the *Rani* could be quietly removed from Keonjhar to Puri, the Bhuyas would accept Dhanurjay" (ibid.).

However, the Bhuiya did not give up their resistance and they armed themselves with bows, arrows and axes when the *Rani* finally left the palace and Keonjhar. The British then tried to solve the problem using force and they caught several hundreds of them, brought them to the *Rani* and asked her to give up her opposition, otherwise they threatened that other Bhuiya would also be captured and would have to bear the consequences for their actions. Under such conditions the *Rani* accepted to release the Bhuiya from their oath and finally agreed to consent to the succession of Dhanurjay:

> "On the 13th February 1868 she was present at the installation of Raja Dhanurjay by the Bhuyas, and on the next day she conferred on the Raja a shiropa, or token of her acknowledgement of his succession. On the 17th February 1868, the final ceremony of 'first-offering', in token of submission, was performed by the Bhuyas and Juangs. The Raja was seated on a low gadi of cushions in the outer courtyard, and received the people, who flocked in with music playing and garlands round their necks. Each Bhuya headman in succession kissed the foot of the Raja, and then pressed it to his forehead and ears. Offerings of pumpkins, plantains, and grain were then presented, and salutations were exchanged. The Juangs followed the Bhuyas, and separately made offerings and address to the Raja. Each headman was then presented with a tusser silk turban and a suit of clothes; goats and fowls were provided, and the people celebrated the occasion with a general feast" (Cobden-Ramsay 1982:220).

However, appearances were deceptive. Under the leadership of Ratna Naik, an influential leader of the Bhuiya, they broke into open insurrection towards the end of April:

> "(...) on 21 April 1868 Ratna Naik declared open revolt against the authority of the Raja. He organised an assembly of the bhuyans, kols and juangs. In the assembly it was decided that they would not recognise Dhanurjay Bhanja as their Raja and would not obey his orders. Rather, they would revolt till they suceeded in installing Brundaban Bhanja in the gadi of Keonjhar. Any person of the Raja Dhanurjay Bhanja sent for a negotiation with the rebels, was either arrested or detained" (Mishra 1983:141).

They plundered the bazaar at Keonjhar and abducted the *Diwan* (Revenue Minister) of the Raja, together with a hundred of his partisans. They disarmed the constables, dismounted the Raja's guns and besieged the palace. They were joined by "all the wild clans (...) in the insurrection" (Cobden-Ramsay 1982:221) and the whole country was thrown into chaos. The insurgents gradually increased their numbers, until there were 20,000 (Mishra 1983:141) and they were joined by dissatisfied *raiyats*. After a period of more than three months, the tribal uprising was finally suppressed by British troops, together with military forces from neighbouring states. Once the military presence of the British and the local authorities was too strong to defy openly, the tribal insurgents hid in the inaccessible jungles. Joint expeditions, comprising of a total of 2,200 sepoys and 13 officers participated in the persecution of the rebels (Mishra 1983:145). Their strategy was to capture the tribal ringleaders; most of whom were Bhuiya and some Juang. The persecution of the rebellious tribals in the forests also led to the burning of tribal villages. After the military suppression of the uprising, 183 prisoners were sent for trial. Seven ringleaders were sentenced to death, 27 were banished for life and the others were imprisoned for various periods (Mishra 1984:145).

Mishra mentions political, economic and administrative causes leading to the tribal rebellion in Keonjhar in 1867-68. The immediate political reason was the installation, with British support, of a new *Raja,* against the will of the tribal population, mainly the Bhuiya. It appears that for a period of time, the widow of the late *Raja* successfully managed to gather tribal leaders for her cause. However, the exact reasons why they opposed Dhanurjay Bhanja are not clear and it would be too simple to assume that the opposing tribal population had purely been manipulated by the *Rani* for her personal political purpose. The fact that the conflict escalated after the *Rani* had finally given her consent to the installation of the new *Raja,* at least indicates that there were other motives involved than purely obedience towards the widow of the late Raja. It is possible that the tribal leaders perceived the intervention by the British authorities to settle the conflict about the successor to the throne as a sign that they were in danger of losing their influence and political autonomy.

Economic and administrative reasons seem to have played a major role in causing the Bhuiya led uprising. According to Mishra (1983:139ff) since the middle of the 17th century, the Hindu Rajas of Keonjhar had made increasing demands for revenue and services from their subjects, including the the tribal population. *Bethi*, the system of free labour for the king and his officers was increased. Under the reign of *Raja* Laxmi Narayan Bhanja, the construction of a large Hindu temple (Balabhadraji) was initiated and free labour services were demanded from the subjects. In the second half of the 18th century, the struggle by Raja Balabhadra Bhanja (1762-97) to resist the invasion by the Marathas called for the strengthening of military forces: one of the strategies employed was to convert part of the Bhuiya *pirhs* into *paikali* tenures (land alienated for the *paiks*, the local militia holding the lands of the military chiefs or rajas by tenure of military service), as the Raja was in need of soldiers. The result of this was that these *pirhs* were then excessively taxed. This provoked resistance from the Bhuiya (Mishra 1983:140ff). At the beginning of the 19th century, *Raja* Janardan Bhanja made the first settlement of the estate (1803) details of which are not, however, available (ODG 1986:249). Various taxes (plough tax, house tax) and *bethi* and *maguns* (subscriptions or cesses levied by the *zamindar* for special purposes) systems were retained. While such taxes were nothing new in the state, the settlement appears to have been an effort on the part of the *Raja*, to increase his control over his officers. Prior to the settlement the situation is described as follows:

> "In the former days there was no land settlement in the region forming the present district of Kendujhar. The revenue system was simply that of making certain demands upon the village headmen who were left to distribute the burden of the demand upon the cultivators in their villages in any manner they considered suitable. Probably each village was called upon to pay as much as it would bear and agreed to pay. But in those days cultivators were fewer than land available for cultivation. There was the possibility of cultivators oppressed by too heavy a demand throwing up their cultivation and shifting to other areas. Hence, this must be having a salutary check upon the capacity of the early rulers in fixing up any unreasonable demands" (ODG 1986:249).

During the 19th century, there were various complaints made by the Bhuiya, about the imposing of illegal cesses by higher and lower revenue officers of the State, as well as the enforcement of free labour for various work. The fact that during the uprising of 1867-68, the *dewan*, the revenue minister of the new *Raja,* was abducted and later killed while another hundred "oppressive officials of the *Raja* were carried off to the hills by the insurgents" (Mishra 1983:141) suggests that administrative arbitrariness was probably a major cause of the unrest among the Bhuiya and other tribal communities. Shortly after the installation of the new *Raja*, Dewan Nanda Dhal "started oppressing the Bhuyan Sardars who had supported the cause of Brundaban. The Bhuyans suspected that the Dewan was organising a rule of tyranny at the connivance of the British officers" (ODG 1986:50). The increasing feeling of domination by

the king's officers and the British authorities was in marked contrast to the perception of the Bhuiya as being the original inhabitants of the area. According to this perception they had themselves called the first king into their territory; a perception which was expressed in a symbolic way at the occasion of the instatement of a new king to the throne; he was to be carried on the back of a Bhuiya as part of the ceremonies (Cobden-Ramsay 1982:214).

There was a second tribal uprising in the princely state of Keonjhar between 1891 and 1893. The Juang were again involved, but the tribal leaders belonged to the Bhuiyan community. Political unrest of the tribal population was triggered by their dissatisfaction of the politico-administrative behaviour of the *Raja* and his officials who inter alia had required excessive free services for the construction of a canal (Mishra 1983:150). After the beginning of the insurgence in 1891, the then *Raja*, Dhanurjay Narayan Bhanja, called for British support against his tribal subjects. In 1893 he fled to Cuttack. The British authorities took over the management of the state and the tribal uprising was finally ended with the help of troops under British authority. The *Raja* returned to his palace in 1894. However, a high-ranking British officer was appointed to supervise the administration of Keonjhar for several years (ibid. 162) and efforts were undertaken to tackle the causes of tribal unrest in this princely state. Both incidences illustrate the delicate political relationship between the state and its tribal subjects that was further complicated by the intervention of the British. The British authorities played an ambivalent role in supporting the *Raja*, as well as trying to address the causes of conflicts.

5.5.4.2 After independence

The history of the relationship between the State and the Juang before independence shows that there were elements of tribal autonomy, interdependence and state control in shifting political pre-colonial and colonial contexts. With regard to the period after independence, the degree of integration of the Juang into modern state structures has increased and there has been a certain loss in their autonomy, with regard to the control of natural resources such as land and forest in Juang area. In the context of the official tribal policy, the Juang together with other tribal communities are perceived as people who deserve special treatment for their development and 'upliftment'. They come under the official category of a 'scheduled tribe' (ST), a concept linked to special policies designed to develop so-called 'backward people'. The attitude of the state, together with its various institutions and officers, towards the Juang is oscillating between welfare and negligence and there are considerable variations between policies on paper and performance in reality. The Juang themselves partially adopt the attitude ascribed to them, as recipients of development aid and special treatment and in certain situations they refer to themselves as *adivasi* to claim support from the state.

Generally, it can be stated that the control of the State over Juang resources has considerably increased since independence and this has decreased the autonomy of the Juang over their area. With regard to forest policy, it has been shown how external control by the Forest Department over the forests in Juang area has increased, since independence. This has certainly resulted in a loss of their previously higher degree of local autonomy, with regard to forest resources. Although the tribals still have the right to sell fuel wood and timber, restrictions in reserved forests, together with stricter rules and regulations in protected forests, have limited the rights of the Juang to their forest resources. Most of the fuel wood and timber that they sell nowadays has been collected illegally; either by felling trees for fuel wood production, or the felling of protected species of tree (classified as 'reserved' trees) for timber . The once legal method of selling timber to the Juang-Bhuiya depot is no longer possible. Although sanctions are not strictly implemented by the Forest Department, the relationship between the Juang and the foresters is potentially conflicting.

State law also interfered with and changed the traditional land management system and land tenure, as has been analysed in chapter 3. The control by the Forest Department and the Revenue Department over natural resources in the Juang area has, in this way, considerably increased since independence, particularly during the settlement that took place during the 1970s. The introduction of the Panchayat system and the administrative organisation of the Block Development, are modern ways of introducing new or replacing former methods of local organization. They were primarily designed to develop people by using a top-down approach, rather than aiming to strengthen their local autonomy and active participation. Organization above village level was not a prominent feature of Juang society and culture in the past. However, strong local organization above village level would be necessary, in order to obtain or increase bargaining power vis-à-vis the state, its institutions and officers, who have become more present in the Juang area since independence.

5.5.5 Inter-village affairs: *Pirhs* and *Gram Panchayat*

Above the level of individual villages in the traditional context, Juang villages were organized as political units, which had their roots partly in the administrative structure of the pre-independent Keonjhar state. However, according to McDougal they were "based on a traditional Juang grouping of neighbouring villages" (McDougal 1962:59). Before independence, western Keonjhar was divided into administrative units called *pirhs*; each *pirh* contained several villages and was represented by a *sardar*, an official post created by the State. He was supposed to act as an intermediary between the group of villages in his *pirh* and the State. He was elected by the constituent villages and in Juang territory it was always a Juang that occupied this post. However, within the traditional political structure of the Juang "the post of *sardar* conferred responsibility, but virtually no authority (...) The *sardar* had no direct sanctions at his disposal and exercised no power by virtue of his formal role. He was the representative of his group, not an administrator" (McDougal 1962:61). His main duties were to collect annual taxes and deliver them to the *tahsildar*; the State's collection agent. On certain occasions, representatives from all of the Juang villages paid homage to the king in his palace at Keonjhar. The king or his officials would then exchange greetings and gifts with the various *sardars* as representatives of the village groups. In cases where the king or any important officials visited the Juang hills, it was the responsibility of the *sardar* to make the necessary arrangements for such visits; although these were rare (McDougal 1962:61).

The *pirh* as an indigenous political institution of neighbouring Juang villages that regulated inter-village affairs, operated in a manner similar to the village council, although meetings were less frequent and only according to needs. The *pirh* council was restricted to dealing with political affairs; there were no articulated economic or ritual ties binding the individual villages of a *pirh*. The *pirh* council was mainly assembled to settle matters of incest and adultery, as well as deal with conflicts involving members of different communities, which could not be resolved by the two villages. Very broadly expressed:

> "A *pirh* council may be convened to take action in any case which is considered a threat to the solidarity of the territorial unit, or disruptive to the equilibrium of the system of relationships among its component villages. If a certain village is considered responsible, the others may impose sanctions to insure that social order is restored; a *pirh* council may be called on the initiative of the leaders of any village which considers itself affected" (McDougal 1962:390).

Once a *pirh* council was convoked, any family head from any village belonging to the *pirh* could decide to join the meeting and to discuss the case. There were no officially or formally appointed delegates. The procedure described by McDougal resembles that of the village council:

> "When all the delegates have arrived, the proceedings are informally opened. Just as informal leaders are recognized among the family heads of different villages, the more influental of these are acknowledged as leaders at the pirh level, and are styled as podhanki. They play the major part in conducting the case" (McDougal 1962:388).

For settling a case, the *pirh* council had to be compensated for by providing a feast at the *majang* for the delegates in the evening. Compensation had to be paid by those persons including their villages who had caused the dispute. The offenders could be fined in cash and kind (stock, rice and money), according to their means.

McDougal mentions the following cases, which provoked the convocation of a *pirh* council:

1) Incestuous relations
2) Adultery between members of two different villages
3) Conflicts between members of two villages (physical violence, curse, witchcraft)
4) Conflicts between groups of villagers, e.g. during marriage ceremonies which may have led to fights

McDougal does not mention any territorial conflicts, or the regulation of conflicts over natural resources as a matter for *pirh* councils. "Disputes over land, especially those concerning the traditional boundaries between two villages," are mentioned by Nayak et al. (1993:45) as affairs to be regulated by the *pirh* council. According to them, "land disagreements within an individual village, as concerning re-allocation of land for shifting cultivation or other work" are considered cases for the *pirh* council, something not mentioned by any other author. N. Patnaik also mentions disputes over village boundaries as matters for the *pirh* council (1989a:62). However, according to Rout "Disputes concerning land are difficult to be decided in the village level, and very often such cases are brought to the Court of Law for judgement" (1969:86).

Contemporary Juang villages are (as all villages) officially organized into so-called *Gram Panchayat* units, which are composed of several villages. Kodipasa *Gram Panchayat* comprises ten villages with a total population of 3,329, according to the 1991 census. These ten villages are mainly inhabited by the Juang, but include a considerable number of other tribals and non-tribals.

A *Gram Panchayat* is considered to be "the primary unit in the democratic decentralisation" by the government. This administrative system was established in Orissa (as in other parts of India) one year after Independence, with the introduction of the *Orissa Grama Panchayat Act* in 1948. The aim was to "establish and develop local self-Government in the village communities and to make better provision for their administration" (ODG 1986:334). In 1954-55, the *Grama Panchayat* administration was extended all over the district of Keonjhar and covered all of the villages. Later these institutions were governed by the *Orissa Grama Panchayat Act* of 1964. Each *Gram Panchayat* is divided into a number of wards. A *panchayat* ward member, who is elected on the basis of adult franchise by his constituents, represents each ward. The head of the *Gram Panchayat* is the *Sarpanch*, who is elected by the voters of the *Gram Panchayat*. The functions of the *Gram Panchayat* are described as follows, in the Orissa District Gazetteer (1986:334):

> "The *Grama Panchayats* continue to function as the main agency for the implementation of all development works and for mobilising manpower in rural areas. Development activities of different Departments of the Government which are co-ordinated at the Block level also continue to be executed through the agency of the *Panchayats*.
>
> The functions of the *Grama Panchayat* include looking to village sanitation, aiding schools, supplying of drinking water, maintenance of roads and wells, ferry ghats, cattle pounds, providing street lights and implementing different agricultural schemes."

Between six and ten *Gram Panchayat* units together constitute a *Panchayat Samiti*, the next administrative level of local self-government and administration. A *Panchayat Samiti* covers the same area as the so-called *Block*; an administrative unit created by the Community Development Department for the purpose of development. The planning, execution and supervision of all the development programmes in the Block area are carried out by the respective *Panchayat Samitis*.

Although designed as institutions of local self-government, in reality this political body has rather limited potential for local self-government. The *Panchayat* system is mainly used to implement projects and programmes through a top-down approach; programmes and projects that are decided by various government departments. Local self-government of the villages of a *Gram Panchayat* is in many cases further restricted by the scarcity of financial means.[53]

The *Gram Panchayat* as an organizational structure beyond village level could be used to frame a local forest policy; to coordinate the rules and regulations between neighbouring villages that are using the same forest areas for their needs, but also with regards to outsiders. However, such cooperation between villages would require the strengthening of *panchayat* units, together with the backing of forest protection efforts at Block level and the coordination of a local forest policy, with the Forest Department.

5.6 Collective action for the management of village forest

So far, I have described how the villagers of Kodipasa, by means of collective action, have tried to get the problem of degrading village forest under control and the difficulties that they have faced in trying to successfully manage it as a common property resource. The analysis of the political system and institutions of the Juang in general and in the two villages in particular, indicates the chances and risks involved in the local institutional setting to solve the problems of managing the village forest as common property.

Based on census data, together with my own observations and discussions with villagers, I will in the following section firstly, crosscheck how far the project of village forest protection in Kodipasa fulfils the design principles of Becker and Ostrom (Becker and Ostrom 1995; Ostrom 1997 and 1999) for a successful common property regime. Secondly, I will consider the variables that Becker and Ostrom (1995) suggest are conducive to the selection of norms, rules and property rights that reduce externalities of collective action for the management of common pool resources as common property.

5.6.1 Ostrom's design principles

By design principle Ostrom means an "essential element or condition that helps to account for the success of (...) institutions in sustaining the common pool resource and gaining the compliance of generation after generation of appropriators to the rules in use" (1997:90). "These principles work to enhance the shared understanding of participants of the structure of the resource and its appropriators and of the benefits and costs involved in following a set of agreed-upon rules" (1999:9). She discriminates between "robust", "fragile" and "failed" self-governed common pool resource institutions. Robust, long-term institutions are characterized

[53] Thus the annual income of Kodipasa *Gram Panchayat* from 1996-1999, for example was as follows: 1996-1997:16,243 Rs. (100 Rs. = 2.7 CHF) / 1997-1998: 11,749 Rs. / 1998-1999: 23,052 Rs.
Expenditure of *Gram Panchayat* units are higher than their income, because through development projects by the State they get additional support – however, being the recipients of support and development, participation and local self-government are restricted.

by most of the design principles listed below. Fragile institutions are characterized by only some of these design principles while failed institutions are characterized by only a few (Ostrom 1999:9). Ostrom takes into account conditions that refer to attributes of the resource, but also conditions that refer to attributes of the appropriators.

1. Clearly defined boundaries:

> "The boundaries of the resource system (e.g. groundwater basin or forest) and the individuals or households with rights to harvest resource products are clearly defined" (Becker & Ostrom 1995:119).

The boundaries of the village forest in Kodipasa are clearly defined and not disputed. It is equally clear that all of the households in the village are recognized as belonging to the local user group. Outsiders from other villages are excluded. The fact that the Forest Department is not formally involved in the village forest protection activities, is a factor of uncertainty: any change in the official forest policy and the implementation of its rules might be of concern for the protected village forest. However, to date, the Forest Department plays neither a positive nor a negative role in the management of the village forest.

2. Proportional equivalence between benefits and costs:

> "Rules specifying the amount of resource products that a user is allocated are related to local conditions and to rules requiring labour, materials, and/or money inputs" (Becker & Ostrom 1995:119).

The allocation of "benefits" is not clear; rules regarding the quantity of timber for construction for own needs are vague and there is considerable individual free-play. Households with little or no need for timber for their own use would like to harvest the same amount of timber as other households, in order to have the same benefit from the village forest. This is clearly voiced, for example by the poorer Juang who accuse the wealthier Gouda households of using too much timber from the village forest for house construction, or by the non-cultivating households that feel that they are disadvantaged by the cultivators that use timber for agricultural purposes (to construct ploughs, stables, and storage). Rules that state that products from the protected village forest should only be for household use and should not be sold, are difficult to monitor and not necessarily equitable, as the needs of the households vary. A possible way to solve this problem would be to periodically allocate a restricted quantity of timber to each household[54] It would then be up to the individual household to decide whether to use this timber for their own needs, whether to sell it, or to use it for any other purpose. So long as each household were to spend the same amount of time patrolling the village forest, they would all get the same amount of resources out of it.

Allocation of fuel wood per household, has so far not been an issue in discussions about the management of the village forest: the only rules with regard to fuel wood are that no trees

[54] Ostrom refers to a study by Netting of the Swiss village of Törbel, where the distribution of timber from the village forest combines aspects of fairness, monitoring and low transaction costs: "(...) residents of Törbel (...) who own communal land spend time governing themselves. Many of the rules they use, however, keep their monitoring and other transaction costs relatively low and reduce the potential for conflicts. The procedures used in regard to cutting timber – a valuable resource unit that can be obtained from communal forests – illustrates this quite well. The first step is that the village forester marks the trees ready to be harvested. The second step is that the households eligible to receive timber form work teams and equally divide the work of cutting the trees, hauling the logs, and piling the logs into approximately equal stacks. A lottery is then used to assign particular stacks to the eligible households. No harvesting of trees is authorized at any other time of the year. This procedures nicely combines a careful assessment of the condition of the forest with methods for allocating work and the resulting products that are easy to monitor and are considered fair by all participants" (Ostrom 1997:65). See also Netting (1995:175-177).

should be felled for fuel wood and that only dead wood should be collected. The fact that the village forest is used for the collection of firewood increases the problem of monitoring; whoever enters the village forest may break this rule. The cost for the households initially is in the time spent patrolling the village forest. However, the weakness of the monitoring system results in an unequal balance of costs and benefits; those who do not patrol at all, or do not do so properly, are not sanctioned, but they save time, which they can spend for other activities and for their own personal use.

Moreover, opportunity costs are not evenly distributed: there is little doubt that restricted and regulated use of the village forest affects all households, but in different ways. This is connected to the varying degree of dependence that each household has on wood selling, as demonstrated in previous chapters. Even if the benefits from the village forest were to be distributed in an egalitarian way among all of the households, the costs of protecting the forest are higher for the poorer households: their labour input for patrolling the village forest is the same as that of the wealthier households, but they bear the additional cost of looking for timber and fuel wood in more distant areas. If local conditions were to be taken into consideration, this could mean that the rules could be designed, in such a way that more benefits could be assigned to the poorer households; however, it is unlikely that the wealthier householders would agree to protect the village forest partly for their poorer neighbours in the village.

3. Collective-choice arrangements:

> "Most individuals affected by harvesting and protection rules are included in the group who can modify these rules" (Becker & Ostrom 1995:119).

Several aspects point to some weaknesses with regard to that condition. To date, decisions in Kodipasa have been taken during meetings in the *majang;* a political institution rooted in Juang society and culture.

a) As women are excluded from the *majang,* and harvesting and protection rules to date, have been mainly decided at such male meetings, the local collective-choice arrangements are vulnerable to forms of "passive resistance" by women, who are a very important user group of the forest, as collectors of fuel wood for their own needs and as wood sellers. It is probably the poorest women that bear the highest opportunity costs for village forest protection.

However, some Juang women were passive participants at the periphery of the meetings that I observed and they were therefore informed as to what went on. The *majang* is not a secretive place and what is discussed there, is easily understood by the women who are assembled within earshot of the meetings. When discussing matters of the village forest with them, they were as knowledgeable as the men. Moreover the women share a gendered political ideology that village affairs are to be decided by men.[55]

Women are, to varying degrees, affected by village forest protection. They are not directly involved in patrolling the forest; although male members of their households are. As providers of fuel wood for household use, most tribal women are interested in having a forest nearby that provides sufficient fuel wood for their needs. This issue is not of direct concern to the Gouda women, as it is the male members of their households that collect the fuel wood from the forest.

[55] According to Agarwal (1997:26) in tribal or hill communities "social constructions of acceptable female behaviour, notions about male and female spaces, and assumptions about men's and women's capabilities and appropriate roles in society" constrain women's participation in emergent community institutions for forest management even without formal exclusion.

Tribal women that are either widows or members of poor households are highly dependent upon selling firewood for their income and the protection of the village forest forces them to go further afield to get the necessary resources.

Many women are caught in the dilemma of having a conflict of interests when it comes to forest resources: on one hand there is the vital need to keep the village forest for the future, as to have a forest nearby from which to collect firewood for household purposes reduces their work. On the other hand, the possibility of getting some cash by selling firewood from the village forest, is an incentive that is not easy to resist. Thus, the women will, under certain circumstances break the rules, which they, like the men, welcome in theory. Several of the villagers informed us, that the first people to have started breaking the rules, in the protected village forest were: old women, widows and other poor women. Whether this was true could not be determined. However, it was obvious that the women, once the control system failed, participated in getting forest resources "freely" and they understood only too well, that what was not taken by them, would be taken by somebody else, sooner or later.

b) The institution of the *majang* is based on the informal leadership of men, especially married household heads and elder men: individuals that remain silent or do not give their consent to resolutions, do not necessarily put them into practice. Thus, both boys and unmarried men that are called to patrol the village forest do not necessarily have an interest in village forest protection, or do not perceive that there is any benefit to them for investing their time in this way. Unless linked with concrete sanctions, such resolutions are not necessarily binding.

c) Although non-Juang men are not excluded from meetings in the *majang*, they are rather reticent to participate in this traditional Juang institution. A weak degree of integration of non-Juang immigrants into the traditional political institution of the *majang* lowers the effectiveness of decisions taken there. However, the example of Gouda men shows that it is possible for non-Juang men to become part of the local political institution of the *majang*.

4. Monitoring:

> "Monitors, who actively audit physical conditions and user behaviour, are at least partially accountable to the users and/or are the users themselves" (Becker & Ostrom 1995:119).

The monitoring system in Kodipasa is obviously weak. The fact that monitors are users themselves, in this case is not always advantageous, but also part of the problem: while patrolling the forest the monitors may break the rules by helping themselves to the resources or if they meet somebody who is breaking the rules, they may take no action, as they know that they have done the same, which makes them much more lenient. Moreover, the accountability of rotating monitors to users who themselves are monitors from time to time is difficult to put into practice. The fact that villagers should control each other, both as users and monitors implies potential conflict, which increases the social costs of village forest protection.

There is another problem that arises from "monitoring the monitors" with regard to the stick rotation system: who checks if somebody really goes to patrol when it is his turn? At what time do the monitors go and when do they come back? What happens if the stick is no longer rotating? Although the stick rotation system does not function properly, at least sporadic discussions in the *majang* make it work occasionally and to a certain extent reduce the degree of unregulated use of the village forest. Outsiders are at least kept out of the village forest and villagers that cut timber and firewood there, may be observed by the patrol and reminded that the village forest is protected.

5. Graduated sanctions:

> "Users who violate rules are likely to receive graduated sanctions (depending on the seriousness and context of the offense) from other users, from officials accountable to these users, or from both" (Becker & Ostrom 1995:119).

Sanctions are not implemented, neither for violation of the rules governing the use of the village forest nor concerning the monitoring system. One reason why this is the case is that a type of moral economy exists within the village. It is well known that some households depend very much on the sale of timber and firewood and if they were denied the opportunity to sell them, they would suffer from hunger. However, there are no efforts made to adapt rules and sanctions to the economic heterogeneity of the households. Another reason why sanctions are not implemented is also linked to the fact, that breaking rules with regard to forest use is not, as yet, considered to be a serious offence.

6. Conflict resolution mechanism:

> "Users and their officials have rapid access to low-cost, local arenas to resolve conflict among users or between users and officials (Becker & Ostrom 1995:119).

The once established forest protection committee did not function and thus, there are no appointed officials responsible for dealing with forest conflicts within the village. The local arena of conflict resolution is the *majang*.

There are conflicts due to the village forest and its resources in the form of mutual accusations and suspicions, verbal aggression and non-cooperation. However, these conflicts are kept at a low level and are dealt with in a rather informal way. There are no serious efforts made at a village level to settle them, or remove the causes of these conflicts. It appears that the cost of handling such matters locally are too high for the villagers. As shown in chapter 5.5.2 this pattern of conflict management strongly resembles traditional patterns of conflicts among the Juang.

Other villagers such as the Munda, Gouda and Santal respect the Juang as being the original inhabitants of the area and thus refrain from picking a quarrel with them over forest resources.

Although local institutions of conflict resolution with regard to village forest protection fail, villagers are not willing to involve outsiders, such as the Forest Department in local control of conflicts. There is no trust in officials from the Forest Department; moreover they also consider the cutting of timber and firewood in other forest areas to be illegal.

7. Minimal recognition of right to organize:

> "The rights of users to devise their own institutions are not challenged by external governmental authorities, and users have long-term tenure rights to the resource" (Becker & Ostrom 1995:119).

So far, the institution of the *majang* has not been jeopardized by the State and the government has not interfered with locally designed institutions over matters relating to the management of the village forest. But the long-term rights with regard to the village forest are not clear. There is currently no formal cooperation between the foresters and the villagers and therefore the villagers have no secure long-term tenure rights to village forest. Classified on the one hand as village forest, it belongs to the village. However, the land belongs to the Revenue Department, the forest vegetation to the Forest Department and what will finally happen to the protected village forest will depend upon the official forest policy, its laws and regulations and their implementation.

8. Nested enterprises:

> "Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises" (Becker & Ostrom 1995:119).

This is not the case, although the village forest of Kodipasa is de jure under the joint control of the Forest and Revenue Departments.

The lack of integration of surrounding forest areas and interior villages in sustainable forest management relativise local forest protection activities. Costs for village forest protection are externalised and pressure on forest resources in interior areas whose protection is linked to higher costs increase.

Analysing the situation in Kodipasa using these design principles, points more to "fragile" rather than successful and sustainable institutions of forest management. The repeated breakdown of the new village forest protection system is caused by a combination of economic and political reasons. That, at least some of the villagers, are reluctant to pay the costs involved in monitoring, either by paying others who patrol the forest in kind, or by spending their time carrying out the monitoring themselves, may to some extent be explained by economical factors; villagers have to 'pay' for the forest resources, which in the past they got for free: now they have to spend their time making rules and regulations, monitoring the forest and resolving conflicts. Moreover, there are no immediate benefits to protecting the village forest. While such short-term calculations are part of the problem, it would be too hasty to assume that villagers are not capable of making decisions that are based on long-term considerations. To assume that local forest protection does not work because the villagers do not perceive it as a serious enough problem that requires solving is also not convincing, as the villagers have tried for years to address this issue.

I rather assume that non-cooperation in paying the costs for forest protection results from the political weakness of the system: the weakest points in the villager's efforts are related to collective choice arrangements, monitoring, sanctions and conflict resolution mechanisms. In chapter 5.5 it has been shown that these difficulties are linked to the general political system of the Juang, which also provides the framework for organizing the management of the village forest.

Using the above design principles as the basis for their arguments, Becker and Ostrom postulate a set of preconditions for the making and implementation of successful and sustainable common property resource management systems. They refer to the selection of norms, rules and property rights.

5.6.2 Selection of norms, rules and property rights

According to Becker and Ostrom (1995:123-124), the success of a collective management of common pool resources systems is favoured by the selection of norms, rules and property rights that reduce externalities. In this section, variables conducive to the selection of favourable institutions are evaluated with regard to the situation in Kodipasa.

1. Information:

> "Accurate information about the condition of the resource and expected flow of benefits and costs are available at low cost" (Becker and Ostrom 1995:123-124).

This variable is closely linked to design principle 2, which refers to costs and benefits. Villagers are aware of the general value of the forest as a provider of various non-timber forest products, fuel wood and timber. They also know that the degrading village forest is linked to the need to increase labour by means of having to travel further afield in order to get fuel wood and timber. This information is available to everybody at low cost. However, there is no

detailed assessment of the ecological condition of the village forest and its productivity, which is of course linked to aspects of costs and benefits. Villagers do not have accurate information that informs them of the sustainable harvest rate that would allow the village forest to regenerate. Thus, the current allocation of timber (harvest rate) for the users is not necessarily attuned to the conditions that would be necessary for sustainable management of the forest. It is possible that even the felling of trees other than Sal to get timber for household needs, is no longer sustainable under current conditions. But the villagers do not consider imposing a total ban on tree felling in the village forest until it has started to recover.[56]

Once fully recovered, sustainable timber and fuel wood harvest rates would have to be fixed. It is possible that the village forest is too small to fulfil the basic subsistence needs of the villagers. However, it may also be possible that, once fully recovered, the forest would yield additional timber and fuel wood for sale. But the villagers do not know if and when this will be the case and how much they would benefit individually per household once the forest had recovered.

While villagers are well aware of the general material benefits that are to be obtained from the forest, with regard to timber and fuel wood, other aspects relating to the forest such as water balance, soil erosion and the local climate are rarely mentioned and such environmental "benefits" are not of high priority in the local cost benefit analysis.

2. Homogeneity:

> "Participants are relatively homogeneous in regard to asset structure, information, and preferences" (Becker and Ostrom1995:123-124).

Due to the vagueness of the term "relatively" this variable is difficult to check: with regards to the asset structure, I have shown that there is a considerable variation between the individual households and groups, with respect to access to land and the dependency on wood selling and other sources of income. However, despite these differences, most households belong to the group of marginal and small farmers and thus may be considered rather homogeneous. Concerning information with regard to the actual state of the forest resources, there are no differences among the households. Preferences with regard to forest resources vary according to the economic situation of a household as well as to ethnic groups as analysed in chapter 4. However, the importance of having firewood and timber for their own use is shared by all villagers, thus the future provision of these forest resources is the smallest common denominator. One of the problems is the higher opportunity costs for the poorer households in comparison to the more affluent ones.

Thus, all villagers share common interests – this helps to make efforts to protect the village forest. But at the same time differences among the villagers renders forest protection difficult.[57]

[56] Moreover, if nobody were to be allowed to fell any trees in the village forest during a restricted period, supervision and control of the forest would be easier.

[57] The same as the factor of group size, the factors of homogeneity or heterogeneity respectively are also contested: "Many scholars conclude that only very small groups can organize themeselves effectively, because they presume that size is related to the homogeneity of a group and that homogeneity is needed to initiate and sustain self-governance" (Ostrom 1999:12). However, heterogeneity of user groups does not always impede successful management of common property resources: "Neither size nor heterogeneity are variables with a uniform effect on the likelihood of organizing and sustaining self-governing enterprises. (...) Instead of focusing on size or the various kinds of heterogeneity by themselves, it is important to ask how these variables affect other variables as they impact on the benefit-cost calculus of those involved in negotiating and sustaining agreements" (ibid.).

3. Common understanding:

> "Participants share a common understanding about the potential benefits and risks associated with the continuance of the status quo as contrasted with changes in norms and rules that they could feasibly adopt" (Becker and Ostrom 1995:123-124).

All villagers have a common understanding of the risks involved if the use of the village forest was to continue in an uncontrolled manner: nearby forest products would cease to be available and an increase in labour would be necessary for obtaining them from more distant areas. This latter problem is a recurrent issue in discussions about the forest with the villagers. Everyone, irrespective of their gender, ethnic identity and economic situation is interested in having forest resources nearby. The group of households who were responsible for initiating the village forest protection scheme were not dependent upon the commercial use of forest resources, but were mainly interested in having a nearby source of fuel wood and timber for their own use. However, for the remaining households new norms and rules that restrict access to the village forest for commercial purposes are linked with a comparatively larger loss of income.

4. Social capital:

> "Participants share generalized norms of reciprocity and trust that can be used as initial social capital" (Becker and Ostrom 1995:123-124).

This condition is only partially fulfilled in the case of the village under study. This is partly to do with the heterogeneity of the various groups in the village, which is characterised by immigration and ethnic heterogeneity.

But social capital is also rather limited within the socio-economic and political structure of Juang society in general. Community based activities among the Juang focus more on political and ritual than on economic activities; with the exception of shifting cultivation and cattle grazing. The main socio-economic unit is the household. Forest resources have so far been used mainly at an individual household level. To use them in a commonly regulated way is a rather new concept for the Juang.

5. Group size:

> "The group using the resource is relatively small and stable" (Becker and Ostrom 1995:123-124).

Again, the term "relatively" makes it difficult to check this variable. Considering the size of the village forest, the village community is not too large; the village forest is nearby, it can be surveyed without too much effort and there are enough households to share the work connected with forest protection.[58]

Apart from a few new settlers and the natural growth in the local population, the village population as a user group is rather stable.

However, there are two reasons why it may be de doubtful that small groups are beneficial for reducing externalities[59]. Social proximity by links of kinship and close neighbourhood on

[58] Each household has to provide about 8 man days of work a year for patrolling, if the village forest is to be patrolled every day.

[59] The interrelation of group size and solving problems of collective action is unclear for other reasons as well. According to Ostrom "(...) one of the problems with a focus on size of group as a key determining factor is that many other variables change as group size increases. (...) Since there are tradeoffs among various impacts of size on other variables, a better working hypothesis is that group size has a curvilinear relationship to performance" (1999:11).

the one hand may be an incentive for avoiding conflicts over the village forest, i.e. one would avoid accusing the other of breaking rules and regulations. This happens for example with the monitors patrolling the forest. On the other hand, any conflict due to the village forest may easily be linked to conflicts which have nothing to do with the forest. Or, any other conflict may be linked to the forest issue – as in the case of disputing neighbours who are not willing to patrol the village forest together. Social control in a face-to-face community does not necessarily reduce transaction costs and local conflict arenas may not be the best place to deal with villagers breaking the rules with regard to village forest. Thus support and enforcement of locally designed operational rules by external authorities may be an important point.

6. Discount rate:

> "Participants do not discount the future at a high rate" (Becker and Ostrom 1995:123-124).

When looking at the future of village forest resources, there is a contradictory perceptional attitude among the villagers. They are all aware that they and their families will suffer without the village forest, or any other forest and their efforts to protect the village forest are an indicator of that fear. Conversely, it is difficult for the villagers to imagine that the forest would ever disappear, although they already realise that they have to spend an increasing amount of time searching for what they require; especially timber and fuel wood.

The discount rate with regard to forest resources varies, depending upon the economic opportunities and alternatives within the households. Thus, it is important to consider the discount rate of the future, not only with regard to the forest, but to other economic activities as well. For the very poor people with little or no land, that live from hand to mouth, there is little choice of a high or low discounting rate of their future; they just try to survive by selling timber and wood. The wealthier households can afford to discount the future, with regard to the forest, at a lower rate, as they can manage with other sources of income. In addition, some of the Juang discount the future in agriculture at a high rate, as they shift to more intensive commercial forest use.

7. Autonomy:

> "Participants have the autonomy to make many of their own operational rules, which if made legitimately, will be supported and potentially enforced by external authorities" (Becker and Ostrom 1995:123-124).

With regard to village forest protection, the villagers have so far created their own operational rules without checking with or seeking the legitimacy of the state or the Forest Department. Support and enforcement of their own operational rules by external authorities therefore does not take place.

The villagers' efforts to protect the village forest are partly congruent with the policy of Joint Forest Management. However, in order to become a legally accepted Joint Forest Management project, the villagers would have to change part of their operational rules and cooperate with the Forest Department.

8. Collective-choice rules:

> "Participants use collective-choice rules that fall between the extremes of unanimity or control by a few (or even bare majority), and thus they avoid high transaction or high deprivation costs" (Becker and Ostrom 1995:123-124).

The analysis of the traditional Juang system of the *majang* in chapter 5.5.2 hints at the problems of collective choice rules of this traditional political institution. The fact that this local institution exists does not automatically mean that it may solve new problems, such as the one

of degrading forests. Furthermore, the fact that new groups have migrated into the Juang area implies possible problems with the integration of these new groups into this traditional political institution and the need to create new forms of collective choice.

The lack of integration of women into the *majang*, as a political village institution, excludes women as an important forest user group from decision-making about the rules of village forest use and protection.

9. Low-cost monitoring and sanctioning:

> "Participants can develop relatively accurate and low-cost monitoring and sanctioning arrangements" (Becker and Ostrom 1995:123-124).

Problems with monitoring and sanctioning, in the context of village forest protection, have already been illustrated in chapter 5.4.1. Although arrangements are made, they are not implemented in an effective way.

5.6.3 No village forest protection in Upper Kansa

Wood collectors from Kodipasa, but also from other nearby, or even more distant villages, are obtaining wood for their household use, or for sale in the forest behind the protected village forest in Kodipasa. Both men and women can be observed, early in the morning, arriving from the plain, carrying food and axes, to spend their day in the forest. In the afternoon they return to their villages, carrying head loads of fuel wood or timber. They arrive from the neighbouring villages of Sirispal and Tulasichaura, as well as from more distant villages such as Narayanpur, Ranki, Mandua, Saras, Kashipur, Badabil and Kandaraposi (all within a radius of 6 to 12 km distance). Some of these villages and hamlets are close to Keonjhar Town. Some of the wood collectors originate from areas where there are no forests at all, or just small patches of open forest. Others, such as the villagers from Narayanpur live at the edge of a larger forest. However, Narayanpur Forest is classified as a reserved forest and is therefore under stricter control by the Forest Department than most other forests in the Juang area that are classified as protected forests.

The villagers that come from outside the area climb the hill of the protected village forest of Kodipasa and cut timber and firewood in the various forest areas that lie behind it, in the same locations as the villagers from Kodipasa, Upper Kansa and other Juang villages. The fact that a large number of outsiders from the plain come to collect wood in this Juang area is a recent development. The Juang of Upper Kansa remember a time, when outsiders were rarely seen in their area and they realise, as do the villagers of Kodipasa, that their forest is coming under increasing pressure. However, there are several reasons why they do not feel that they are able to actively protect their forest area. Firstly, the area is too large to be watched. Secondly, the Juang of Kansa feel that they are powerless to stop the increasing number of outsiders coming into their area. Some of these villagers, from the plain arrive in groups, with bullocks and yokes, to carry large amounts of timber (one pair of bullocks can carry 12-15 timber poles).

On the other hand, there is still an attitude towards forest resources as common pool resources, accessible and open to everybody, linked to a rather vague concept of fixed and strongly marked territoriality. In the same way as the Juang of one village do not hesitate to collect forest products, or graze their cattle in other areas outside of their village, they do not feel that they are the exclusive proprietors of the forest in their own village area. Their perception is closer to the idea that forest resources belong to nobody or to everybody. They do not accept the claim by the Forest Department to be the only proprietor of their forest area, nor do they claim that they themselves are the exclusive owners and users of these resources.

Another way in which the two villages differ in their attitude towards village forest resources, is probably related to the size of the forest area that has been affected. The villagers of Upper Kansa do not perceive that the forest area is noticeably dwindling at the same rate, as do the people from the village at the foot of the hills who live on the margins of the village forest.

Similar attitudes can be found in other Juang villages in somewhat more remote areas than Kodipasa; thus the Juang of Roduan do not feel it necessary to restrict outsiders from collecting timber and firewood, or grazing their goats and cattle, in their territory. They perceive the forest resources to be abundant. The only restriction that they do impose is that any outsider that wishes to start cultivating in their area must first seek their permission before doing so. A Juang man from Gonasika, made an interesting remark, when he stated that in his village, the Juang do not feel harassed by outsiders, but by the foresters.

5.6.4 Village forest protection – other's forest destruction?

It is perceived to be becoming increasingly difficult to find an adequate supply of satisfactory trees for timber and firewood in the immediate neighbourhood of Kodipasa and Upper Kansa. Further distances have to be travelled to get timber and firewood for sale. If one were to consider the areas where the villagers of Kodipasa and Upper Kansa cut trees for timber and fuel wood, it transpires that they cover a rather wide area, including the forests that surround other original Juang settlements. Forests around Kansa, Radhuan, Kundhei, Bhagamunda, Tangarpada, Gonasika, Barurha, Duarsani, To*Rani*pani, Jantari, Bali, Kapotadiha and Pandadara are all mentioned when people are asked where they go to collect timber. They travel distances of up to fifteen kms or more, mainly in a westerly and south-westerly direction. This route takes them into interior forest areas, which according to the maps of 1978/79 were described as: "dense mixed jungle", "dense mixed jungle mainly sal" or "fairly dense mixed jungle mainly sal" with some areas at the fringe of the forest hills characterised as "open mixed jungle". However, according to statements made by the forest rangers the forests in this area in the meantime have degraded considerably and there is hardly any dense forest to be found in the whole of Bhuiya-Juang Pirh.

In all of these forests, people from the Juang villages in the hills, on the fringe of the hilly forest areas and to a lesser extent even from the plain, cut wood for their own use and for sale. The combination of farming and wood selling is found in many villages of the research area, although the distance from the villages to the main market of Keonjhargarh is an important factor that determines the extent to which wood is sold. In interior Juang villages that are a large distance from Keonjhargarh or other market centres, less wood is carried to the market. The Juang of Panasanasa,for example, are more dependent upon shifting cultivation and their *toila* fields are larger than those in Upper Kansa. In contrast to the Juang women of Kodipasa and Kansa, women from Juang villages that are a greater distance from Keonjhar market, are less involved, if at all, in wood selling activities and it is mainly the men that sell timber.

The protection of village forest, as in Kodipasa is linked with the externalisation of costs in the form of increasing pressure on forest areas lying beyond the protected village forest. Not only the villagers from Kodipasa, but also outsiders that are excluded from the protected village forest, shift to the more remote forest areas. As long as there are no substantial economic alternatives to selling fuel wood and timber, for providing a rather secure income, wood sellers will increase their labour input by spending more time in other forest areas and walking longer distances to find adequate forest resources. To focus on the protected village forest only, evades the larger ecological context, of which a protected village forest is part.

This is a highly problematic issue with regard to many of the variables that Ostrom and Becker consider to be important for sustainable resource management. If costs for the protec-

tion of specified natural resources are externalised this may have consequences for resources not being under a common property regime and for users not being included in the protectors group. Sustainable use of a defined protected area may therefore be gained at a cost to other areas and to other users.

To handle the environmental problem of forest degradation beyond an individual village community would be challenging in many ways. It is obvious that any kind of regional forest protection could only be undertaken in the form of nested enterprises and their institutional frameworks would have to go beyond the village community.

All village communities in the forest area that are visited by outsiders, who come to collect fuel wood and timber, would have to be involved. The coordination of rules and regulations between villages and an inter-local monitoring system, as well as inter-local conflict resolution mechanisms would be required. Adequate information about the condition of the various forest areas and resources and about the "carrying capacity" of the forest areas would have to be delivered in detail, as a prerequisite to deciding about the definition of users and boundaries, the number of users and the rates of harvest, and expected costs and benefits for a network of forest protection groups.

Whether traditional institutions that link the Juang villages, or more modern institutions such as the *panchayat* system or the block development organization, could play a part in such an approach would have to be considered.

Without any serious coordination between the Forest Department and the village communities, in the form of formal and legal agreements between them, clearly defined roles and functions, their rights and duties, such a regional approach is unlikely to be successful. Some few Joint Forest Management (JFM) projects, as well as local forest protection activities on the part of single villages, will not solve the problems of forest degradation, but mainly shift them to neighbouring areas, except where they are designed in such a way, that no costs are externalised.

In fact, Becker and Ostrom's design principle number 8 incorporates all the elements of principles 1 to 7, but in an even more complex way. This also applies to the variables that are conducive to the selection of norms, rules and property rights that reduce externalities:

1) Accurate information about the condition of the resource and expected flow of benefits and costs will be more difficult to get and not be available at low cost for large forest areas.
2) Participants (villagers / Forest Department) will be more heterogeneous in regard to asset structure, information and preferences.
3) There will be less common understanding about the potential benefits and risks of forest protection.
4) There will be less social capital between various participants.
5) Group size will increase.
6) The future will be discounted at various rates by the participants.
7) Designing and elaborating models of increased autonomy for participants will be a lengthy process.
8) Collective-choice rules for users of several villages will have to be established.
9) Costs for monitoring and sanctioning will increase.

6 CONCLUSIONS

Based on my field research and the data presented here, my conclusions focus on the economic and political issues of the management of natural resources with special regard to land and forest in the research area.

By and large, peasants in the two villages follow strategies of minimizing labour input and maximizing output under given environmental and technical conditions. Returns to labour of various economic activities are taken into consideration for economic decision making. However, peasant strategies also aim at minimizing the risks, by combining various economic activities and by spreading labour over the year.

In order to understand the economic meaning of forest resources for the two villages, one has to consider the local economy as composed of various land use systems; agricultural land and forest being the most prominent resources used by the villagers. Wage labour is the third means by which the villagers can earn an income. The study has clearly shown that forest resources are of vital importance for both villages under study. Villagers are not solely dependent upon them for their own use, but also as a means of earning cash. Fuel wood and timber are cash crops for the majority of the villagers; not just the Juang. The sale of timber and fuel wood to a large extent compensates for the lack of locally produced paddy – most villagers sell wood in order to buy food.

Factors that limit the local production of paddy in Kodipasa are the low productivity of land using current cultivation techniques, combined with the shortage of good quality agricultural land for the majority of households and the village as a whole. If peasants complain about scarcity of agricultural land, this means that there is a lack of land of good agricultural quality sufficiently worthy of investing in.

Substantial changes could only be made using high labour investments in order to reclaim cultivable wasteland, or intensifying land use by major improvements to the existing irrigation facilities. Several factors deter the small peasants from making these changes: the reclamation of the remaining low quality wasteland requires a high input of labour and yields are low during the first few years. Poor households in particular, lack the capacity of investing labour without immediate returns. Moreover, it is not a foregone conclusion that the peasants will be given land titles for government land that they have encroached.

Higher productivity of land for paddy cultivation would reduce the dependency of the majority of households on felling trees for timber and fuel wood, in order to earn the necessary income with which to buy food. To raise land productivity and to reduce risks linked to rainfed cultivation is possible by improving irrigation facilities. However, this requires labour and capital. The construction and maintenance of a canal irrigation system from the perennial river, which is some distance away, would only make sense if all or at least the majority of households participated in this scheme (better water management by a canal system from a perennial river for paddy cultivation is a crucial factor for higher and more secure yields). Households that cultivate land that is not their own, as shown in chapter 4.4.1 are not interested in investing labour in fields that do not belong to them.

Access to land, either under private property regime, or regulated by informal land transactions, together with the quality of land are crucial variables for the degree of involvement of various households of Kodipasa in agriculture and thus also in commercial wood selling. The shortage of locally produced paddy is not equally distributed among the households and thus the degree of dependence on other sources of income also varies among households. However, even if land were distributed equally among all households, this would not stop commercial wood selling, but only redistribute the dependence on wood selling or other sources of income among households, to compensate for the general deficit of locally produced

paddy. Thus, the landless Gouda households rely for their agricultural production upon being able to purchase or rent land from the Juang who make their land available to the Gouda, as they choose to increase their income by selling wood rather than cultivating the land.

However, it is not only access to land and land productivity that determine the degree of dependence on wood selling and/or other sources of income: labour productivity is also taken into consideration in the context of economic decision making. In Upper Kansa land scarcity is not a problem: under a regime of common property, each household has access to land according to its needs. Contrary to Boserup's (1998) theory of higher returns to labour for shifting cultivation in comparison to wet rice cultivation; in Upper Kansa returns to labour are lower than in Kodipasa. The shifting cultivators of Upper Kansa combine agricultural production with wood selling and wage labour; as returns on labour for selling wood and wage labour can equal those of shifting cultivation. They reduce labour input for the cultivation of swiddens and increase the amount of labour used for wood selling. Although, on average, returns to labour for shifting cultivation are no lower than for wood selling and wage labour, the risks are higher: in a bad year shifting cultivators lose income from their labour input in swiddens and have to compensate for this loss mainly by wood selling. Thus, their strategy is to minimise their risk by limiting the area that they use for shifting cultivation and selling wood in order to cover part of their needs. Thus, they do not fully exhaust available land and labour for shifting cultivation.

There is limited potential for agricultural intensification in areas of shifting cultivation. Thus, to force a reduction in wood selling activities in Upper Kansa, by an increased enforcement of forest laws, would probably result in an increase in *toila* land. A reduction in the pressure on forest resources by way of imposing a restriction on the felling of trees for the purpose of selling timber and fuel wood, would therefore only shift the pressure on forest resources to areas used for shifting cultivation.

Moreover mixed economic strategies bolster risks linked to uncertainties in the context of rain- fed cultivation or cultivation based on low-sale irrigation facilities and allow the spread of labour input throughout the year in both villages. The fact that wood selling is a rather consistent source of income throughout the year makes it a reliable supplement to agricultural production. The lack of wage labour, be it farm or off-farm, together with similar returns on labour for wage labour and wood selling, are further reasons for opting for wood selling as a viable economic opportunity. If there were a greater and more frequent demand for wage labour which had a better return to labour than wood selling, this would probably reduce the incentive to sell wood.

Finally, villagers not only need cash to buy additional rice, but also to cover other needs: the sale of fuel wood and timber provides the cash with which to buy goods on the market for their household and individual needs.

However, the economic strategies of individual households are not influenced by economic considerations and circumstances alone. Intra-household relations to a certain extent also determine the economic performance of a household and the level of its involvement in various economic activities. Intra-household relations are dependent upon the bargaining power and fallback positions of individual members, their gender, age and marital status. These in turn are partially related again to aspects of social status, caste and interlinked gender ideologies.

There is a broad variety of household realities in the two villages with regard to intra-household relations. Neither the idea of a household as a cooperative unit based on the altruism of individual household members pooling labour and income for the common well-being of everybody, nor the idea of a household as a unity held together by an authoritarian and powerful family head, fully cover household realities in the two villages. The idea of a house-

hold as composed of individual members with their own preferences, interests and strategies reflects the reality of many households more adequately.

The degree of cooperation and conflict among household members, the degree of power and authority a household head has, the bargaining power of men and women and older and younger members vary between households and also depend upon the stage that the household developmental cycle is in.

The interaction of these various factors may result in a sub optimal economic performance of a household. Thus, from an economic standpoint, nuclear families are not necessarily best adapted to the economic requirements necessary for the type of shifting cultivation practised in Upper Kansa. Low land and labour productivity and extended labour peaks can be managed better by larger households: these may cultivate larger areas and handle labour peaks with more ease than smaller households, provided that the household head has enough authority to control the household members and has their full cooperation. In addition larger households are less vulnerable when it comes to the loss of household members due to sickness, death or marriage.

Large households are also at an advantage in a system of permanent paddy cultivation if they have access to sufficient land. And even if the amount of land a household has access to is restricted and the family is highly dependent upon other sources of income, a large household could still be at an advantage because it has a higher degree of flexibility over the investment of labour in various activities. But there are centrifugal forces within the households resulting in early household fission: lack of trust between family members, problems of free-riding and lack of social status of dependent household members may all be sufficient incentives for them to separate and to work harder for an independent household of their own.

The nuclear family is the most common type of household found in both villages and among all ethnic groups. Although data from this study does not indicate that household size is generally well adapted to economic requirements, there are cases, which suggest quite the opposite: if a household manages to adapt to economic requirements, its economic performance is better. The delay of household fission may be a result of either cooperative behaviour of individual household members or of the authoritarian power a household head may have or a combination of both.

Despite the broad range of household types, it may be said that the families and households of the Juang, in comparison to the Gouda are characterised by a higher degree of individualism and by the fathers as family heads having a lower degree of authority; thus centrifugal forces tend to be stronger among the Juang, than among the Gouda. The fact that wood selling and wage labour are not considered by the Juang to be beneath their social status probably enhances tendencies of early household fission.

Other examples of sub optimal economic household performance are linked to poorer households having to transfer their land: loss of land for paddy cultivation due to renting, mortgaging or selling it to other households usually has to be compensated for by an increase in labour for wood selling and/or wage labour. In some cases it is not only a loss for the household as a whole, but the burden has to be unevenly carried by various household members: in the case of the Juang, the women are more involved in wood selling and wage labour than the men.

Analysis of data about the economic behaviour of the households of the various ethnic groups allows the conclusion that aspects of status, caste and gender linked to ethnic identity interfere with economic strategies and decision-making. Thus, cultural and social values and preferences determine to a certain degree involvement in commercial wood selling. These values in the case of the Gouda restrict the activity of wood selling, contrary to the Juang,

who find it acceptable to do this kind of activity and even shift a large part of this responsibility to the woman.

The analysis of the economic meaning of forest resources for the peasants provides the basis for an examination of different aspects of contemporary management of forest resources in the two villages, within the historical context of official forest policies and traditional local management systems.

Contrary to widespread assumptions about the management of natural resources as common property in tribal communities, the type of forest management required for protecting forest resources as common property, is not part of the traditional resource management systems of the Juang. To handle the problem of degrading forest areas is a new challenge for the villagers. Villagers in Kodipasa initiated village forest protection when they started to realise that they were in danger of losing the material benefits of forest products for their own use. Romantic and optimistic ideas that tribal forest dwellers protect forests for cultural or social reasons, due to their unique relationship with nature and in particular the forests, neglect the fact that it is the material value of forest resources that determines their use to a great extent and that many contemporary forest dwellers are partially integrated into a cash and market economy.

Thus in Kodipasa the increasing pressure on forest resources has on the one hand initiated efforts to manage forest resources as common property and on the other hand the fact that many villagers sell timber and fuel wood is part of the problem of successfully protecting the village forest.

For economic and political reasons, village forest protection in Kodipasa is a partial failure, as its evaluation according to Ostrom and Becker's design principles and preconditions for collective action indicates. Socio-economic heterogeneity between households as well as between the various ethnic groups complicates collective action for the protection of the village forest due to differing opportunity costs. However, the fact that every household across all the ethnic groups is dependent upon forest resources to a certain extent, could nevertheless provide the economic basis for collective action: thus socio-economic heterogeneity in this case is not considered to be the main factor for the weak performance of the village forest protection initiatives. Problems of collective choice arrangements, monitoring, sanctions and mechanisms of conflict resolution are more serious issues than aspects of socio-economic heterogeneity.

Established institutions are at the heart of all efforts to solve the problem of degrading village forest. However, the traditional political institutions of the Juang largely preclude the participation of women and young men and limit the participation of non-Juang immigrants. They are also weak with regard to mechanisms of conflict resolution and sanctioning.

An important finding of this case study is that neither small sized user groups nor close social proximity between the villagers, by links of kinship and neighbourhood, are necessarily advantageous when it comes to handling problems of collective action for the management and protection of the village forest, especially with regard to sanctioning and conflict resolution. Firstly, social proximity may prevent or limit the punishment of an individual who breaks the rules, particularly if the rules that are broken are not highly valued by the society (in contrast to rules of endogamy and exogamy e.g.). Secondly, social proximity may raise the cost of conflicts within the community, especially if there is no legitimate leader with the authority to implement sanctions, as in the case of the villages under study. The strategy of diluting conflicts (in order to prevent them affecting larger parts of the community) instead of solving them, is not effective, when it comes to dealing with problems that relate to village forest protection, as has been shown.

The idea that existing local institutions can easily provide solutions to new problems that arise, is too optimistic in the case of Kodipasa. These institutions nevertheless, are starting points for the villagers, for dealing with the new problem of degrading village forest and offer them the potential to contribute towards its solution. Support from outsiders, not belonging to the village community, could enhance the chances for the successful organisation of village forest protection. Although monitoring, enforcement and sanctioning by individuals, other than members of the user groups, would be more costly, it might be more effective to delegate these activities, or at least part of them to outsiders. The recognition and backing of locally designed rules and regulations by external authorities could also strengthen local efforts. However, cooperation with the Forest Department as a potential partner for efforts of village forest protection is difficult as the Department formally controls all of the forests in the area, including the one where the villagers illegally cut timber and fuel wood for sale.

So far, new institutions such as the *Gram Panchayat* do not play a role in the local management of natural resources although institutions that interlink and organise village communities would be necessary for the sustainable management of forest resources in larger areas.

Limited village forest protection, as in Kodipasa does not solve the problem of forest degradation, but partially shifts the pressure to other forest areas, which have open access, even if legally they are under the control of the Forest Department. Part of the costs that are linked to village forest protection in Kodipasa are externalised. This is a result of the exclusion of outsiders from the protected village forest by sending them to the interior areas. Moreover, the needs of the Kodipasa villagers that can no longer be satisfied by the protected village forest, are met in interior forest areas. Ideally the protected village forest should yield enough to meet all or most of the villagers' needs in order to reduce their dependency from obtaining resources from the interior areas. This would require the adaptation of the size of the village forest to the villagers' needs based on reliable data on yield rates of various forest products in the village forest.

In order to control forest degradation in larger forest areas, a regional approach would be necessary that would require cooperation, not only between villages, but also between the villages and the Forest Department. Forest management, in the form of nested enterprises, as suggested by Becker and Ostrom (1995) however would be a rather ambitious project, given the fact that there is no history of either inter-village cooperation with regard to forest resources or cooperation between the villagers and the Forest Department.

Contrary also to widespread assumptions that with the start of British colonialism, interventions by an almighty state and the Forest Department have destroyed common property institutions in tribal communities, the forest area of the Juang and Bhuiya enjoyed, for a considerable period, a special status as a tribal area. It is only since the 1970s that the Forest Department has increased its control over these areas. Paradoxically, this increase coincides with the implementation of an official forest policy in India and Orissa that promotes the participation of local communities: Joint Forest Management promotes cooperation between village communities and the Forest Department with the purpose of achieving sustainable forest management. But so far, no JFM project has been undertaken in the tribal area of the Juang and Bhuiya.

The role of the Forest Department and its attitude towards the forest dwellers is ambiguous. On the one hand, it bans the felling of trees for the purpose of producing fuel wood for sale; on the other hand it tolerates the sale of such wood in the centre of the district's capital. It is stricter in sanctioning villagers who sell wood as timber.

The Forest Department also encourages villagers to stop shifting cultivation and to protect "their" forest. Conversely, it is the Forest Department that legally controls all forests, even those that are within village territories. In the case of Kodipasa, there is no coordination be-

tween the efforts of the villagers to protect their village forest and the Forest Department. Due to the conflicting relationship between the foresters and the villagers, the villagers do not actively seek support from the foresters when it comes to matters relating to the protected village forest. Cooperating with the Forest Department with regard to the village forest while disregarding forest law elsewhere would be contradictory. Successful cooperation between foresters and villagers could only take place if there was an equitable agreement made about the use of both protected village forest and forest areas not protected by the villagers.

Given the prominent economic significance of forest resources as cash crops in both villages, basically there are two strategies for handling the problem of forest degradation caused by wood selling. Firstly, a strategy to protect forest resources by restricting the felling of trees for wood selling would have to compensate for the economic loss of the villagers, i.e. provide them with the means to get an adequate alternative income. This would suggest raising the productivity of the land for paddy cultivation e.g. by improving irrigation facilities or providing them with regular, guaranteed wage labour or other income generating possibilities.[60]

The other strategy would be to accept that many villagers in and around the forest are considerably dependent upon the cash income that they get from selling fuel wood and timber, besides being dependent on various other forest products for their own use. As long as the local demand for fuel wood and timber from people not living in or nearby forests (due to the lack of alternatives) is high, such a strategy would also be feasible. Until the start of the 1980s, the Juang-Bhuiyan depot at Keonjhar was a place where the Juang and Bhuiya could legally sell timber and fuel wood. This points to a crucial issue, which has not been given adequate attention in recent forest policies: the commercial significance of forest resources as a means for the forest dwellers to eke out their living. In many cases it may be naive to assume that forest dwellers are satisfied with using the forest in a traditional and non-commercial manner.

A forest policy acknowledging the needs of forest dwellers to sell forest resources to ensure their livelihood, could give them the status of legal providers of fuel wood and timber. This could be an incentive for the forest dwellers to manage forest resources in a regulated and controlled way. Sustainable forest management would then require the development of management systems which yield timber and fuel wood for sale in specified areas and which are based on serious environmental evaluation. To encompass the cash needs of the villagers in efforts of Joint Forest Management would of course require larger forest areas under the control of villagers than they would need purely for their own subsistence needs.

[60] Ideas such as the one of planting several mango trees, in order that the villagers could sell mangos instead of fuel wood and timber are shortsighted, as they do not seriously consider the needs of the local villagers that require regular cash throughout the year in order to buy rice. It is of little benefit to the villagers to be able to sell mangos for a few weeks a year.

APPENDIX

1) Glossary / Abbreviations

Badi: permanent cultivation of various crops on land behind the house, by use of the plough and dung, with crop rotation und mixed cropping
Bila: paddy cultivation on permanently cultivated land
Bok: Juang term for patrilineal clan
Bualok: 2nd year swidden plots: (*bua* = paddy, *lok* = place)
Bwita: Juang village priest
Gonat: Juang term for a small hand hoe (in Orya: goronda)
Gram Panchayat: village council of several villages
Guda: a type of semi-permanent cultivation, with fallow periods of between two and five years
Handia: rice beer
HYV: High Yielding Varieties
I.T.D.A: Integrated Tribal Development Agency
Khandi: local unit of measurement, 1 *khandi* = 20 *pai* = 40 *mano*
Mahul: alcohol produced from the flowers of the tree *Madhuca indica*
Majang: the men's house in a Juang village
Mano: local vessel of specific size
Mana: a local measurement of land. Two *mana* are approximately equivalent to one acre.
Nala: 3rd year swidden plots (*nala* = old in Juang terminology)
Ordhano: assistant of the village priest *bwita*
Pai: local vessel of specific size approx. double size of *mano*
Pradhan: headman of a village
Pus puni: a ritual which takes place during the month of January, and which initiates the annual subsistence cycle
Rani: a princess or queen, the wife of a *Raja*
Ryot / raiyat: 1) a cultivator, 2) an occupancy tenant
Sahi: village hamlet
Sardar: headman of a village
Sarpanch: political head of a *Gram Panchayat*
Surilok: 1st year swidden plot: the Juang name these plots with reference to the cultivation of *sulur* (= *Phaseolus mungo;* O = *biri;* black gram, pulse variety)
Tahsil: an administrative unit for revenue administration
Toila (podu, jhum): shifting cultivation
USAID: United States Agency for Development Aid
Zamindar: 1) an official in precolonial India assigned to collect the land taxes of his district, 2) a landholder in British colonial India responsible for collecting and paying to the government the taxes on the land under his jurisdiction

2) Measures, weights and rules of conversion

Local Measurement of crops, converted into metric weight

Pouti, khandi, *pai* and *mano* are local measurements of various grains and crops. *Pai* and *mano* refer to two vessels, each of a specific size. *Khandi and pouti* are measures referring to a certain number of *pai*:

2 *mano* = 1 *pai*
20 *pai* = 1 *khandi*
10 *khandi* = 1 *pouti*
1 *khandi* = 20 *pai* = 40 *mano*
1 *pouti* = 10 *khandi*

The weights of these measures vary according to the weight of various grains and crops. Most important in the context of this study are the weights of paddy, rice and *niger*.

According to Bose (1967:146) *mano* as a measurement of crops is equal to one pound. This is valid for paddy and niger only, not for rice.

Paddy:
1 *mano* paddy = 0.5 kg paddy = 0.35 kg rice
1 *pai* paddy = 1 kg paddy = 0.7 kg rice
1 *khandi* paddy ≈ 20 kg paddy ≈ 14 kg rice

Rice:
1 *mano* rice = 0.65 kg rice = 0.93 kg paddy
1 *pai* rice = 1.3 kg rice = 1.86 kg paddy
1 *khandi* rice ≈ 26 kg rice = 37.13 kg paddy

Niger:
1 *mano niger* = 0.5 kg *niger*
1 *pai niger* = 1 kg *niger*
The local exchange rate of niger – rice in 1998 was 1:2. This means, 1 kg niger could be exchanged for 2 kg rice.

Conversion paddy – rice:
According to own measurement in the village the weight of 1 kg paddy made into cleaned rice is as follows:
1kg paddy = 0.7 kg rice, thus 1 kg rice = 1.428 kg paddy
The conversion rate of rice to paddy is therefore 1.428.

According to the District Statistical Handbook, 1 kg paddy is 0.66 kg rice, the conversion rate of rice to paddy is 1,5.

Square measures

According to the ODG (1986: 270) 2 *manas* correspond to nearly 1 acre of land.
In this study calculation was done with the following measures:
– 1 *mana* land = 0.5 acre = 2023.5m^2 = 0.20235 ha
– 2 *mana* land = 1 acre = 0.4047 ha
– 1 hectare = 2.4711 acres ≈ 5 *mana*

According to the ODG (1986:250) the original *mana* in Upper Keonjhar covered an area usually sown with 25 kg paddy for wet cultivation, i.e. *bila* land.

Farmers of Kodipasa give the following information regarding the quantity of seeds per quantity of land for paddy cultivation: with 1 *khandi* paddy (20 kg paddy seeds) one *mana* land can be sown, either for *bila* or for *guda* cultivation. Thus to cultivate 1 hectare, 100 kg paddy seeds are required.

For this study, the calculation of cultivated area (in hectare) in 1999 is based on the quantity of paddy seeds used by the households:

The quantity of paddy seeds in kg divided by 20 kg paddy seeds required per *mana* gives the number of *mana*. The number of *mana* then divided by 2 results in the quantity of acres (2 *mana* = 1 acre). This area multiplied by 0.4047 ha indicates the area in hectare.

3) Seeds required per consumer under various conditions of daily rice consumption

The last column of the following table indicates the required seeds per consumer under condition of a harvest rate of 1:10 and under various conditions of daily rice consumption:

Daily rice consumption	Annual need of rice per consumer	Converted in paddy (multiplied by 1.428)	Plus 10% seeds	Required seeds (10%)
0.65 kg	237.3 kg	338.8 kg	372.7	37 kg
0.54 kg	197.1 kg	281.5 kg	309.6	31 kg
0.50 kg	182.5 kg	260.6 kg	286.7	29 kg

4) Area required per consumer under various conditions of rice consumption and rice yields per ha

237.25 kg rice has to be produced to feed one consumer for one year, if an optimal daily consumption of 650 grams rice is assumed. With a harvest rate of 1:10, additional 10% are necessary for seeds: i.e. 260.975 kg rice per consumer is required. If assumed a lower yield of 595 kg rice per hectare as per the official data for Kodipasa G.P., the necessary area incl. seed production will be 0.4386 ha per consumer unit.

Calculation: 365 x daily consumption plus 10% seeds for the next cultivation cycle gives the required quantity of rice per consumer to be produced annually.

Required area in ha per consumer under various conditions of yield and consumption is the following:

Rice per consumer in kg	Yield in kg rice per ha	Required ha per consumer
0.65	595	0.4386
0.65	700	0.3728
0.54	595	0.3644
0.54	700	0.3097
0.45	595	0.3037
0.45	700	0.2581

Conversion of *niger* seeds into paddy seeds under various conditions of niger and paddy harvest rates

1 kg *niger* seeds corresponds to 4.24 kg paddy seeds:
If a *niger* harvest rate of 1:15 is assumed, 1 kg *niger* seeds yields 15 kg *niger*, which corresponds to 30 kg rice or 42.44 kg paddy. To cultivate 42.44 kg paddy with a paddy harvest rate of 1:10, 4.24 kg paddy seeds are required.

1 kg *niger* seeds corresponds to 2.86 kg paddy seeds:

If a *niger* harvest rate of 1:10 is assumed, 1 kg *niger* seeds yields 10 kg *niger*, which corresponds to 20 kg rice or 28.56 kg paddy. To cultivate 28.56 kg paddy with a paddy harvest rate of 1:10, 2.86 kg paddy seeds are required.

1 kg *niger* seeds corresponds to 5.712 kg paddy seeds:
If a *niger* harvest rate of 1:10 is assumed, 1 kg *niger* seeds yield 10 kg *niger*, which correspond to 20 kg rice or 28.56 kg paddy. To cultivate 28.56 kg paddy with a paddy harvest rate of 1:5, 5.712 kg paddy are required.

5) Harvest rates for paddy cultivation on various types of land

Harvest rate of *bila* cultivation for local rice in Kodipasa:
1: 9; 1:10 in a good year
1:8 in a medium year
Less in a bad year

Harvest rate of *bila* cultivation for HYV with fertilizer:
1:12 in a good year
1:15 in a very good year on good land
According to McDougal (1963:49) the harvest rate for irrigated *bila* cultivation is 1:13.

Harvest rate of *guda* cultivation for local rice in Kodipasa:
1: 9; 1.8 in a very good year
1:7 in a good year
1:6; 1:5 in a medium year
Less in a bad year

Harvest rate of shifting cultivation:
McDougal (1963:49):
Harvest rate for "kimbiyang rice" (long term rice variety): 1:7
Harvest rate for "fast growing rice" (short term rice variety): 1:5.5

Rice yields 1996-1999 (qtl./hectare) in Keonjhar District and Banspal Block:

	1996-1997	1997-1998	1998-1999
Keonjhar District			
Autumn	5.16	10.96	4.33
Winter	8.62	16.28	9.57
Irrigated summer	18.63	20.96	n.a.
Banspal Block			
Autumn	6.51	10.65	5.56
Winter	11.03	13.86	6.59
Irrigated summer	8.82	11.19	n.a.

(Statistical data from the Deputy Director of Agriculture, Keonjhar)

Average rice yield (qtl./hectare) in Banspal Block 1997-1998 (in a "good year", "normal year"):

Autumn (non irrigated), local variety	6.85
Autumn HYV	15.55
Winter (non irrigated), local variety	10.66
Winter HYV	15.40

6) List of main crops

Juang name	Orya name	Botanical name	English
bua (paddy)	chaula	*Oryza sativa*	paddy (rice)
akayang	kangu	*Pennisetum italicum*	millet
kudu	*mandia*	*Eleusine coracana*	finger millet
jinjari	*gangei*	*Sorghum vulgare*	sorghum
soriso	*soriso*	*Brassica campestris*	mustard
juani	*maka*	*Zea Mays Linn.*	maize
baitalu	*boitalu*	*Cucurbita maxima*	pumpkin
kalar	*ruma*	*Vigna unguicalata*	bean variety
ramtila	*rasi; niger*	*Guizotia abyssinica*	oilseed variety (ramtil, blackseed)
saru	*saru*	*Colocasia esculenta*: / Dioscorea sp.	coco-yams
senai	*harada*	*Cajanus cajan*	pulse variety
sulur	*biri*	*Phaseolus mungo*	black gram, pulse variety
suturi		*Vigna umbellata*	pulse variety

7) Money: Rupees, Dollars and Swiss Franks

In 1998/99 40 Rs. were 1 US$.
100 Rs. were 2.7 CHF.
(The price of 1 kg rice on the local market of Keonjhar was 10 Rs.)

8) Definition of Variables

The following definitions have been used for data collection and analysis:

Adults, girls and boys:

- Adults: men and women at the age of 14 and above.
- Girls and boys: below the age of 14.

Producers:

Juang producers:
- Females at the age of 14 and above are given the value of 1 as producers.
- Girls at the age of 11 to 13 are given the value of 0.5 as producers.
- Females at the age of 60 and above are given the value of 0.5 as producers.
- Males at the age of 18 and above are given the value of 0.8 as producers.

– Boys at the age of 14 to 17 are given the value of 0.5 as producers, if not attending school, 0.25 if attending school.
– Males at the age of 60 and above are given the value of 0.5 as producers.
– Men and boys working in other households are calculated as producers of 0.8 if contributing to the family income. If they contribute only part of their income to the household, they are calculated as 0.4 producers.
– Sick persons are given the value of 0.5 or 0 if unable to work.

Higher ranking Gouda producers:
– Females at the age of 14 and above are given the value of 0.8 as producers.
– Girls at the age of 12 to 13 are given the value of 0.5 as producers, if not attending school, 0.25 if attending school.
– Females at the age of 60 and above are given the value of 0.5 as producers.
– Males at the age of 18 and above are given the value of 1.
– Boys at the age of 12 to 14 are given the value of 0.5, if not attending school, 0.25 if attending school.
– Boys at the age of 15 to 17 are given the value of 0.8, if not attending school, 0.4 if attending school.
– Males at the age of 60 and above are given the value of 0.5 as producers.

Lower ranking Gouda producers:
– Females at the age of 14 and above are given the value of 1.
– Girls at the age of 12 to 13 are given the value of 0.5 as producers, if not attending school, 0.25 if attending school.
– Females at the age of 60 and above are given the value of 0.5 as producers.
– Males at the age of 18 and above are given the value of 1.
– Males at the age of 60 and above are given the value of 0.5 as producers.
– Boys at the age of 15 to 17 are given the value of 0.8, if not attending school, 0.4 if attending school.
– Boys at the age of 12 to 14 are given the value of 0.5, if not attending school, 0.25 if attending school.

Santal producers:
– Females at the age of 14 and above are given the value of 1.
– Females at the age of 60 and above are given the value of 0.5 as producers.
– Girls at the age of 12 to 13 are given the value of 0.5 as producers, if not attending school, 0.25 if attending school.
– Males at the age of 18 and above are given the value of 1.
– Males at the age of 60 and above are given the value of 0.5 as producers.
– Boys at the age of 14 to 17 are given the value of 0.8, if not attending school, 0.4 if attending school.
– Boys at the age of 12 to 14 are given the value of 0.5, if not attending school, 0.25 if attending school.

Munda Producers:
– Female at the age of 14 and above are given the value of 1 as producers.
– Girls from 12 to 13 are given the value of 0.5 as producers if not attending school, 0.25 if attending school.
– Females at the age of 60 and above are given the value of 0.5 as producers.

– Males at the age of 18 and above are given the value of 1 as producers.
– Males at the age of 60 and above are given the value of 0.5 as producers.
– Boys at the age of 14 to 17 are given the value of 0.8 as producers, if not attending school, 0.4 if attending school.
– Boys at the age of 12 to 14 are given the value of 0.5, if not attending school, 0.25 if attending school.
– Sick persons are given the value of 0.5 or 0 if unable to work.

Consumers:

– Household members working for other villagers and provided with meals at their working place are considered 0.5 consumers.
– Persons at the age of 12 years and above: value 1.
– Persons at the age of 3 –11 years: value 0.5.
– Persons below the age of 3 years: value 0.
– Children eating in school: 0.25 if considered as half consumer, 0.5 if considered as full consumer.

– Daily consumption of rice: approx. 0.5 kg.
– 0.5 kg rice = 0.7 kg paddy.
– Annual need per consumer unit: 182.5 kg rice or 260.61 kg paddy; incl. 10% seeds: 286.671 kg paddy.

The question about the daily consumption of rice was whenever possible directed to the women of a household, because they are responsible for cooking. Answers were given in the measurement of a local vessel, "*mano*"; this corresponds to approx. 0.65 kg rice. However, the size of these vessels varies, it may contain more or less than 0.65 kg rice. For calculations an average of 0.6 kg rice per *mano* was assumed.

9) Tree species sold as firewood (Chap. 3.4)

Adina cordifolia (O = Koimo (Kurum)
Aegle marmelos (O = Belo, J = Kuklap)
Alangium salvifolium (O = Ankula, J = Ankala)
Anogeissus latifolia (O = Dhaura, J = Kesen)
Buchanania lanzan (O = Charo, J = Tarap)
Croton oblingofolius or *Croton roxburghii* (O = Putuli, J = Sigen)
Diospyros melanoxylon (O = Kendu, J = Teren)
Diospyros sylvatica (O = Kalicha, J = Kalia jhalai)
Ficus glomerata (O = Dimiri, J = Dumuri)
Gmelina arborea (O&J = Gambhari)
Hollarhena antidsenterica (O = Kudchi, J = Kiring)
Homalium nepalense (J = Khakada)
Impatiens balsamina (O = Haragoura, J = Benduli)
Ixora pavetta (J = Guruba)
Justicia gendarussa (J = Tartari)
Madhuca indica (O = Mahul, J = Munnun)
Ougenia oojeinensis (O = Bandhana)
Phyllanthus emblica (O&J = Anla) ?

Poi Jamulia (?)
Pongamia glabra (O&J = Karanj)
Shorea robusta (Sal)
Terminalia alata (O = Asan, J = Antanak)

10) Reserved tree species in the forests of Keonjhar Division in 1959

1) Sal (Shorea robusta)
2) Piasal (Pterocarpus marsupium)
3) Sisoo (Dalberjia Sisoo and Dalberjia latifolia)
4) Kendu (Diospyros melanoxylon)
5) Gambhar (Gmelina arborea)
6) Kurum (Adina cordifolia)
7) Asan (Terminalia tomentosa)
8) Kusum (Schleichera oleosa)
9) Harida(Schleichera oleosa)
10) Bahada (Terminalia belerica)
11) Amla (Emblica officinalis)
12) Ambo (Mangifera indica)
13) Tentuli (Tamarindus indica)
14) Mahula (Madhuca indica)
15) Jack (Artocarpus integrifolia)
16) Khair (Acacia catechu)
17) Bandhan (Ougenia oojeinensis)
18) Kangada (Xylia xylocarpa)
19) Jamu (Syzygium cumini)
20) Swam (Soymida febrifuga)
21) Sarap (Caryota urens)
22) Bheru (Chloroxylon swietenia)
23) Arjun (Terminalia arjuna)
24) Char (Buchanania lanzan)
25) Dhaura (Anogeisus latifolia)
26) Toon (Cedrela toona)
27) Kochila (Strychnos nux-vomica)

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